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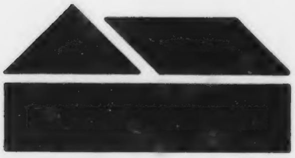
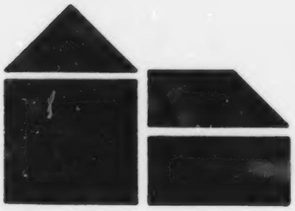
Design Preferences and Trade-Offs for Moderately Priced Housing in Alberta

Computer Program Instruction Manual


Single-Detached Units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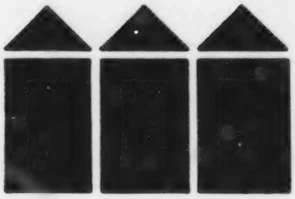
Townhouse Units

Alberta
DEPARTMENT OF HOUSING

THE STUDY OF DESIGN PREFERENCES AND TRADE-OFFS FOR MODERATELY PRICED HOUSING IN ALBERTA

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February 1983

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Prepared for:

Planning and Research Branch
of the
Alberta Department of Housing

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PREFACE

In May 1982, the Alberta Department of Housing commissioned a study of housing design preferences and trade-offs. The study focussed on typical, moderately priced single-detached, semi-detached and row housing being developed in new suburban homeownership markets in Calgary and Edmonton at that time. Its purpose was to provide builders, designers and others involved in providing housing with information on how best to allocate limited resources to maximize the perceived value and livability of starter homes in a context of high costs and interest rates prevalent at that time.

The study resulted in the following three publications:

The Study of Design Trade-Offs for Moderately Priced Housing in Alberta is a comprehensive and technical report completed in February 1983 by Strategic Development Services Limited with the assistance of Heine, Johnson, Sustronk, Weinstein & Associates and Summa Partnership Ltd. This report provides detailed documentation on the methods and results of the study and may be of most interest to researchers.

Design Preferences and Trade-Offs for Moderately Priced Housing in Alberta: Reference Manual is an illustrated summary of the comprehensive report and was completed by McKellar Architects in November 1983. This report presents study findings and is oriented towards housing industry practitioners interested in the design and marketability of moderately priced housing.

Design Preferences and Trade-Offs for Moderately Priced Housing in Alberta: Computer Program Instruction Manual is a report containing operating instructions for and an explanation of a computer program developed to assess house plans for moderately priced single-detached, semi-detached and row housing units. The program was developed by Strategic Development Services Limited in September 1983 for the IBM personal computer and is based on the theory and findings of the design trade-off study. This report will be of interest to housing industry practitioners who use micro-computers in their business.

Copies of these reports are available from:

Planning and Research Branch
Alberta Department of Housing
Fourth Floor
10050 - 112 Street
Edmonton, Alberta
T5K 2J1

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0.0 SUMMARY

In May 1982, Strategic Development Services Limited was retained by the Planning and Research Branch of the Alberta Department of Housing to conduct a study of the design of moderately priced housing. Specifically, the study was to investigate design trade-offs in single-detached, semi-detached and townhouse units typical of that being produced for the new home ownership markets in Calgary and Edmonton. Three major objectives pertaining to the design of moderately priced housing were sought; i.e.,

- the identification of features and components which new grade-oriented housing should contain to ensure a high standard of perceived liveability and value;
- the identification of design trade-offs which will result in improved liveability at constant cost or which will maintain liveability at reduced cost;
- the identification of constraints acting on various aspects of housing design and production which result in suboptimal solutions to a household's housing requirements.

Two concerns guided the development of an approach to this study. First, if one considers questions of housing design, it becomes readily apparent that the existence of building codes, regulations and current industry practices tend to ensure that, at the very least, the minimal requirements for structural soundness, safety and welfare in new housing are met. Approaching the objectives of the study from the perspective of identifying all features and components new housing should contain was therefore thought to result in much redundant information. Instead, the approach taken was to identify design aspects of new housing which were not meeting the requirements of home buyers.

The other concern was also based on practical consideration. Even if the scope of the study is limited to the investigation of unmet design requirements, alternative designs which do meet household requirements may nevertheless be extremely large in number or not applicable in practice for various reasons. In order to minimize these difficulties, design alternatives were limited to those falling within the following constraints:

- current building practices,
- household budget or cost constraints,
- regulatory constraints,
- known buyer preferences.

Given these considerations, the objectives of the study, as outlined above, were attained through a number of investigative steps: i.e.,

- guided by a review of past research on housing design and the relationships to costs and liveability, a number of discussions were held with prospective and recent purchasers of new, moderately priced, grade-oriented housing in Calgary and Edmonton. These discussions resulted in the identification of aspects of housing design which lead to dissatisfaction for some homebuyers or do not meet their housing requirements.

  Forty-six unmet design requirements were identified from these discussions and the review of past research. An analysis of the relationships between these requirements reduced the number of requirements to three major groupings:

  - unmet design requirements associated with design attributes external to the unit itself ;
  - unmet design requirements related to internal layout, circulation, room sizes, etc.;
  - unmet design requirements related to aspects of construction quality.

- a limited number of design alternatives for each of the housing types were developed. Unit attributes most closely associated with unmet design requirements were identified and alternatives developed within the framework of the four major constraints. The attempt was made to develop only alternatives which were within current industry practices in Calgary and Edmonton and as much as possible within regulatory constraints. Cost constraints were maintained by including cost saving trade-offs which could compensate for construction cost increases resulting from some design alternatives.

  Preliminary cost estimates for such trade-offs were obtained through interviews with builders in Calgary and Edmonton. These were later refined for specific design alternatives through a survey of builders in the two cities.

- buyer preferences for design alternatives and the trade-offs comprising these alternatives were evaluated by surveying prospective and recent purchasers of new, single-detached homes and recent purchasers of new semi-detached and townhouse units in Calgary and Edmonton. Housing included in this survey was typical of moderately priced housing; i.e. under $85,000 and around 1100 to 1200 square feet in developed area, situated on a narrow 30 foot wide lot. In total, about 50% of the households surveyed responded by completing a self-administered questionnaire; i.e., 388 responses were received from single-detached buyers; 43 from semi-detached buyers; 153 from townhouse buyers.

Information received from prospective and recent purchasers was analysed separately for single-detached, semi-detached and townhouse units. The analysis was done primarily from the viewpoint of identifying buyer preferences for unit attributes associated with unmet design requirements and trade-offs in these attributes. A summary of the results of the evaluation of buyer preferences is presented below for each of the unit types investigated.

In reading through this summary and the subsequent sections of the report, it must be remembered that the evaluation of buyer preferences for unit attributes and trade-offs in those attributes have been derived from information obtained from survey questionnaires. As such, the findings have not been subjected to the acid test of the market place. The results and findings of this study should therefore be approached with the same caution that would normally be applied to survey research and be tempered by the reader's own housing market experience.

The objective of this study was to investigate design trade-offs and the implication of such trade-offs for liveability and costs of moderately priced housing in the Calgary and Edmonton markets. Both of these markets tend to be characterized by relatively high costs for the components of housing, particularly serviced lots, and by heavy government involvement in easing the financial burdens of first time buyers. For these reasons and the fact that some housing preferences are very local in nature, the applicability of this study to housing markets outside Edmonton and Calgary should again be guided by local market experience.

0.1 Single-Detached Units

The analysis of responses received from prospective and recent purchasers of single-detached units resulted in the identification of four buyer types. Differences amongst these buyer types were primarily in their preferences for specific unit attributes and trade-offs in these attributes: i.e.,

- TYPE 1/maximum space buyers [20% of single-detached buyers] - the distinguishing characteristic of prospective and recent buyers classified as belonging to this group is the high preference or value placed on total unit size. Cost saving trade-offs involving reduced unit size are not possible with these buyers.
- TYPE 2/style buyers [23% of single-detached buyers] - given a narrow lot, most buyer types prefer a split-level style. This is especially true for TYPE 2 buyers. The preference for a split-level style tends to exceed preferences for most other unit attributes examined.
- TYPE 3/facade buyers [32% of single-detached buyers] - a decorative or fancy facade is very important to buyers preferences for a unit. Facade treatment is so important to TYPE 3 buyers that unit area, style and even number of bedrooms would be traded-off for preferred facade treatment.
- TYPE 4/minimum price buyers [25% of single-detached buyers] - buyers in this group differ from other buyers primarily in the value placed on cost savings resulting from reduced unit area. A smaller unit size is preferred if cost savings can be realized.

Other household and buyer characteristics examined in the survey tended to be largely irrelevent to buyer preferences. Only minimal differences were evident in household composition, age, income or even in terms of being prospective or recent purchasers in Calgary and Edmonton. Households in each buyer type typically consisted of young married couples, about half with children, and with average household incomes slightly over $30,000.

0.1.1 increasing liveability in single-detached units

Variances in a total of 26 unit attributes associated with design requirements in moderately priced units were evaluated in terms of buyer preferences. The effect of variances in these attributes on buyer preferences is summarized in Figure 0.1.

Although some major differences do exist between buyer types, preferences and, presumably, liveability can be increased in a similar manner for most single-detached buyer types; i.e.,

- external design requirements - unmet requirements pertaining to design aspects external to the unit itself were mostly related to external appearance, circulation, space allocation and natural lighting. Requirements in these areas can be met for most buyer types by:
  - using split-level or bi-level styles with decorative facades emphasizing such structural features as a chimney chase, boxed or bowed windows and variations in roof elevations;
  - minimizing frontyard setbacks to improve backyard space;
  - providing rear lane access to parking;
  - providing sufficient side yard space to allow windows to be located on all unit sides.

FIGURE 0.1

SINGLE-DETACHED BUYER PREFERENCES:

• major effect on preference increase
□ moderate effect
○ minor effect

[A] EXTERNAL DESIGN ATTRIBUTES:

			BUYER TYPE:			
			TYPE 1	TYPE 2	TYPE 3	TYPE -
1.	FACADE	(a) plain facade & $1000 saving				
		(b) fancy facade & 100 SQ. FT. less	□	•	•	•
2.	SHAPE	(a) rectangular unit shape	•	○		○
		(b) "EL" shape & 100 SQ. FT. less			○	
3.	STYLE	(a) bungalow				
		(b) bi-level			•	
		(c) split level	•	•		•
		(d) two-storey				
4.	SET-BACK	(a) 15 FT. front yard	○	□	○	□
		(b) 25 FT. front yard				
5.	PARKING	(a) back yard, lane access	□	□	□	
		(b) front yard, street access				○
6.	SITING	(a) 20 FT. unit & 2 side yards			○	
		(b) 25 FT. unit & 1 side yard	○	○		○
7.	AREA	(a) 0 SQ. FT. less & $0 saving	•	○		
		(b) 100 SQ. FT. less & $2000 saving				
		(c) 200 SQ. FT. less & $4000 saving			○	•
8.	MAIN ENTRY	(a) front		○	○	○
		(b) side	○			
9.	2ND ENTRY	(a) back		○		
		(b) side	□		○	○
10.	WINDOWS	(a) on all four sides	□	□	•	□
		(b) front & back only				

[B] INTERNAL DESIGN ATTRIBUTES:

			TYPE 1	TYPE 2	TYPE 3	TYPE -
1.	FOYER	(a) main entry foyer		□		○
		(b) no main entry foyer	□		○	
2.	2ND DOOR	(a) hinged door	□	○	□	○
		(b) sliding patio door				
3.	STAIRS	(a) located next to entry	•	□	□	□
		(b) centrally located				
4.	LIVING RM.	(a) large l.r. & small dining area	□	○	○	□
		(b) small l.r. & large dining area				
5.	BEDROOMS	(a) 1 large & 2 small bdrms.	•	•	•	•
		(b) 2 large bedrooms				
6.	½ BATH	(a) ½ bath on main floor	•	•	•	•
		(b) no ½ bath & $1500 saving				
7.	EATING AREA	(a) with living area	•		○	□
		(b) with kitchen		○		
8.	KITCHEN LAYOUT	(a) "U" shaped counter	•	•	•	•
		(b) "L" shaped counter				
		(c) "in-line" counter				
9.	KITCHEN STORAGE	(a) pantry		○		
		(b) overhead cupboards	○		○	○
10.	CUPBOARD STYLE	(a) styled doors		•	□	•
		(b) plain doors	□			
11.	EAT-IN KITCHEN	(a) eating area in kitchen	•	□	□	•
		(b) no eating area in kitchen				

FIGURE 0.1 cont'd.

SINGLE-DETACHED BUYER PREFERENCES:

● major effect on preference increase
☐ moderate effect
○ minor effect

[C] CONSTRUCTION RELATED ATTRIBUTES:

			BUYER TYPE:			
			TYPE 1	TYPE 2	TYPE 3	TYPE 4
1.	KITCHEN STORAGE	(a) completed O.H. cpbds. or pantry	●	☐	☐	☐
		(b) buyer completion & $500 saving				
2.	FIXTURES	(a) lights & closet doors installed	●	●	☐	
		(b) no lights/doors & $700 saving				○
3.	PAINT	(a) walls painted	●	●	☐	☐
		(b) no paint & $1000 saving				
4.	FLOORING	(a) carpet & lino installed	●	●	☐	●
		(b) lino thruout & $300 saving				
		(c) subflooring only & $1300 saving				
5.	INSULATION	(a) standard insulation				
		(b) upgraded insul. & $1000 extra	●	●	●	●

Some differences in buyer type preferences do exist for some of these attributes. For the most part, variations in the above attributes result in only minor changes in preference.

- internal design requirements - unmet design requirements associated with internal design aspects were mostly in circulation, space allocation and kitchen design/layout. Attributes which increased buyer preferences were also fairly consistent across buyer types. Liveability was most increased by the following:
  - three bedrooms;
  - one and a half baths with the half bath located near the second entry;
  - a "U" shaped kitchen counter layout with a window in the kitchen work area and sufficient space for an eating area in the kitchen;
  - a larger living room at the expense of dining area;
  - stairways located near entries to the unit.

- construction related requirements -quality of construction and workmanship are extremely important to single-detached buyers. Improving construction quality was examined from the perspective of cost saving trade-offs for buyer completion of non-structural aspects. Savings in these areas could be applied to unit price or to quality improvements elsewhere.

  Aside from preferring to pay extra for upgraded insulation, most buyer types do not prefer to make trade-offs involving buyer completion of painting, flooring, lighting fixtures, closet doors or kitchen storage space. Only TYPE 4/minimum price buyers were relatively indifferent to trading-off buyer completion of light fixtures and closet doors for cost savings.

0.1.2 reducing costs in single-detached units

Four main areas of cost saving trade-offs were examined for single-detached units:

- a plain facade for a $1000 cost saving,
- no half bath for a $1500 cost saving,
- buyer completion of non-structural items for cost savings ranging from $300 to $1300,
- reductions in unit area for cost savings of $20 per square foot.

Opportunities for reducing unit costs without decreasing buyer preferences or liveability are relatively limited for moderately priced, single-detached units. Cost savings in high perceived value items such as facade treatment or half bath result in major declines in preference. Less than a completely finished unit also results in preference declines.

The only trade-off acceptable to some buyers, in particular facade and minimum price buyers, is in unit area. Buyers in these two groups will trade-off unit area for cost savings of $20 a square foot. In the case of price buyers, reductions in area can even be valued at lesser amounts. Given the importance construction quality has for single-detached buyers, preferences and liveability would probably be most increased if such cost savings were used to upgrade insulation, floor and wall surfaces and other visible construction related items.

0.1.3 constraints on maximizing preferences: single-detached buyers

Two types of constraints may impede the incorporation of preferred unit attributes into the design of single-detached units: increases in construction costs and regulatory constraints. The attempt was made in presenting unit attributes which would increase costs to associate these attributes with others which would offset these increases. For example, a decorative facade and deviations from a rectangular shaped unit were associated with reductions in unit area. Therefore, for the most part, construction cost increases associated with preferred unit attributes should only be marginal. Cost increases which do occur are primarily associated with a major increase in preference which is greater than the decline in preference resulting from reduced unit area. Such cost increases would therefore be compensated by reductions in area.

In only one area did preferred buyer attributes conflict with regulatory requirements. Preferences for most buyer types are increased with a wider unit. However, a wider unit on a narrow lot means the use of a zero-lot-line siting and restrictions on window locations. The absence of windows on all unit sides tends to have a fairly substantial negative effect on preferences.

It is unlikely that this requirement can be changed. The best compromise solution is to have two side yards and preferred window locations. The increase in preference for this alternative is much greater than the decline in preference resulting from a narrower unit.

0.2 Semi-Detached Units

Only a relatively small sample of recent semi-detached unit buyers was included in the study. These respondents were considered as a group and not classified into buyer types. Household characteristics of these buyers were quite similar to those of single-detached buyers; i.e. young married couples, about half with children, household incomes in the low $30,000 range.

0.2.1 increasing liveability in semi-detached units

Unit attributes examined in terms of buyer preferences in semi-detached units were very much the same as for single-detached units. The major difference being in siting, facade and window location attributes. The effect of variances in attributes related to design requirements of semi-detached buyers is summarized in Figure 0.2 Maximizing buyer preferences in the three sets of design requirements is briefly discussed below:

FIGURE 0.2

SEMI-DETACHED BUYER PREFERENCES:

- • major effect on preference increase
- ☐ moderate effect
- ○ minor effect

[A] EXTERNAL DESIGN ATTRIBUTES:

1.	FACADE	(a) plain facade & $1000 saving (b) fancy facade & 100 SQ. FT. less	•
2.	SHAPE	(a) rectangular unit shape (b) "EL" shape & 100 SQ. FT. less	○
3.	STYLE	(a) bungalow (b) bi-level (c) split-level (d) two-storey	☐
4.	STYLE MIX	(a) identical sides/styles (b) mixed styles	•
5.	SET BACK	(a) 15 FT. front yard (b) 25 FT. front yard	○
6.	SITING	(a) 20 FT. unit & side drive parking (b) 25 FT. unit & lane access parking	☐
7.	AREA	(a) 0 SQ. FT. less & $0 saving (b) 100 SQ. FT. less & $2000 saving (c) 200 SQ. FT. less & $4000 saving	○
8.	MAIN ENTRY	(a) front (b) side	○
9.	2ND ENTRY	(a) back (b) side	○
10.	NUMBER OF FRONT ENTRIES	(a) one on facade (b) two on facade	☐

[B] INTERNAL DESIGN ATTRIBUTES:

1.	FOYER	(a) main entry foyer (b) no main entry foyer	○
2.	2ND DOOR	(a) hinged door (b) sliding patio door	○
3.	STAIRS	(a) located next to entry (b) centrally located	○
4.	LIVING ROOM	(a) large l.r. & small dining area (b) small l.r. & large dining area	☐
5.	BEDROOMS	(a) 1 large & 2 small bedrooms (b) 2 large bedrooms	•
6.	½ BATH	(a) ½ bath on main floor (b) no ½ bath & $1500 cost saving	•
7.	EATING AREA	(a) with living area (b) with kitchen	○
8.	KITCHEN LAYOUT	(a) "U" shaped counter (b) "L" shaped counter (c) "in-line" counter	☐
9.	KITCHEN STORAGE	(a) pantry (b) overhead cupboards	○
10.	CUPBOARD STYLE	(a) styled doors (b) plain doors	○
11.	EAT-IN KITCHEN	(a) eating area in kitchen (b) no eating area in kitchen	☐

FIGURE O.2 cont'd.

SEMI-DETACHED BUYER PREFERENCES:

• major effect on preference increase
□ moderate effect
○ minor effect

[C] CONSTRUCTION RELATED ATTRIBUTES:

1.	KITCHEN STORAGE	(a) completed O.H. cpbds. or pantry	□
		(b) buyer completion & $500 saving	
2.	SOUNDPROOF'G.	(a) std. soundproofing	
		(b) upgraded soundproofing & no lights/closet doors & $200 saving	□
3.	PAINT	(a) walls painted	□
		(b) no paint & $1000 saving	
4.	FLOORING	(a) carpet & lino installed	□
		(b) lino thruout & $300 saving	
		(c) subfloor only & $1300 saving	
5.	INSULATION	(a) std. insulation	
		(b) upgraded insulation & $1000 extra	□

- external design requirements - external appearance and facade treatments are quite important to most semi-detached buyers. Style is also important but of more importance than unit style is the mix of styles in attached units. Preferences are greater for attached units being of different styles, a bungalow and a two-storey for example, instead of two bungalows. Therefore, identification of the individual unit would seem to be of importance. However, preference is also for only one front entry visible on the facade of the two units. Which unit has the front entry makes little difference but the appearance of one larger unit does.

  Semi-detached buyers tend to be relatively indifferent as a group to variances in other external design attributes examined. Only with respect to unit width and preference for rear lane access to parking is the increase in preference significant.

- internal design requirements - design requirements associated with internal design aspects were essentially the same for all unit types. Preferences in attributes associated with these requirements were also similar to single-detached buyer preferences: i.e.,
  - three bedrooms;
  - one and a half baths;
  - "U" shaped kitchen layout, with an eating area in the kitchen.

  Aside from preferences for a smaller living room and more space in the kitchen/dining area, variances in unit attributes had only a minor effect on semi-detached buyer preferences.

- construction related requirements - construction quality, particularly insulation and soundproofing between units was extremely important to semi-detached buyers. Although most buyers would not prefer cost saving trade-offs for buyer completion of non-structural aspects, improved soundproofing was preferred to the extent that buyer completion of light fixtures and closet doors would be traded off for upgraded soundproofing.

0.2.2 reducing costs in semi-detached units

Again, limited opportunities for reducing unit costs in semi-detached units were apparent without reducing buyer preferences. Decorative facades, half baths and completely finished units have a high perceived value for buyers and are not easily traded off. Cost savings in unit area have only a minor effect on buyer preferences if limited to 100 square feet or less. Some cost savings may therefore be possible in this unit attribute.

0.2.3 constraints on maximizing preferences: semi-detached buyers

If reductions in unit area are sufficient to compensate for increased costs of facade treatments, construction cost constraints should be relatively minimal in designing semi-detached units which meet buyer preferences. Conflicts between regulatory constraints and buyer preferences are also not a problem.

0.3 Townhouse Units

The analysis of preferences of recent townhouse buyers in Calgary and Edmonton resulted in the identification of four buyer types: i.e.,

- TYPE I/sweat equity buyers [36% of townhouse buyers] - a distinguishing characteristic of these buyers is the preference shown for cost savings resulting from buyer completion of non-structural items such as painting, flooring, light fixtures and closet doors.
- TYPE II/standard product buyers [26% of townhouse buyers] - preferences of buyers in this group are greatest with unit attributes typical of product produced for the Calgary and Edmonton markets.
- TYPE III/privacy buyers [20% of townhouse buyers] - privacy in backyard areas is quite important to most townhouse buyers. Buyers in this group prefer

FIGURE 0.3

TOWNHOUSE BUYER PREFERENCES:

• major effect on preference increase
□ moderate effect
○ minor effect

			BUYER TYPE:			
			TYPE I	TYPE II	TYPE III	TYPE IV
[A]	EXTERNAL DESIGN ATTRIBUTES:					
1.	ATTACHMENT	(a) side-by-side	•	•		•
		(b) back-to-back & $500 saving			•	
2.	ATTACHED NUMBER	(a) 4 units	○	○	•	○
		(b) 10 units & $2500 saving				
3.	PARKING	(a) by unit	○	○		□
		(b) grouped & $500 saving			○	
4.	O.L.A.	(a) 400 SQ. FT. yard	○	○		
		(b) 600 SQ. FT. yard & no tot lot			○	□
5.	SHAPE	(a) rectangular shaped unit	○	□		
		(b) "EL" shape & 100 SQ. FT. less			•	□
6.	WIDTH	(a) 20 or 25 FT. wide	○		□	○
		(b) 15 or 20 FT. wide		○		
7.	AREA	(a) 0 SQ. FT. less & $0 saving	□	•	□	
		(b) 200 SQ. FT. less & $4000 saving				□
[B]	INTERNAL DESIGN ATTRIBUTES:					
1.	FOYER	(a) main entry foyer	○	•	□	
		(b) no main entry foyer				○
2.	2ND DOOR	(a) hinged door	○		□	○
		(b) sliding patio door		○		
3.	STAIRS	(a) located next to entry	○		□	□
		(b) centrally located		○		
4.	LIVING RM.	(a) large l.r. & small dining area	○	•		□
		(b) small l.r. & large dining area			○	
5.	BEDROOMS	(a) 1 large & 2 small bdrms.	•	•	•	•
		(b) 2 large bedrooms				
6.	½ BATH	(a) ½ bath on main floor	•	•	•	•
		(b) no ½ bath & $1500 saving				
7.	EATING AREA	(a) with living area	○	•	□	
		(b) with kitchen				○
8.	KITCHEN LAYOUT	(a) "U" shaped counter	□	•	•	•
		(b) "L" shaped counter				
		(c) "in-line" counter				
9.	KITCHEN STORAGE	(a) pantry			○	
		(b) overhead cupboards	○	○		○
10.	CUPBOARD STYLE	(a) styled doors		•	•	
		(b) plain doors	○			•
11.	EAT-IN KITCHEN	(a) eating area in kitchen	○	•	•	
		(b) no eating area in kitchen				•
[C]	CONSTRUCTION RELATED ATTRIBUTES:					
1.	KITCHEN STORAGE	(a) completed O.H. cpbds. or pantry	□	•	•	
		(b) buyer completion & $500 saving				□
2.	SOUNDPROOF'G.	(a) std. soundproofing		•		•
		(b) upgraded sndpf'g. & no lights/ closet doors & $200 saving	•		•	
3.	PAINT	(a) walls painted		•		•
		(b) no paint & $1000 saving	○		□	
4.	FLOORING	(a) carpet & lino installed		•		•
		(b) lino thruout & $300 saving				
		(c) subfloor only & $1300 saving	□		•	
5.	INSULATION	(a) std. insulation				
		(b) upgraded insul. & $1000 extra	•	•	•	•

to make trade-offs in unit area and common open area in order to have larger backyards, screened from other units.

- TYPE IV/minimum space buyers [18% of townhouse buyers] - this group of buyers was the only group who prefer to realize cost savings by trading off unit area.

With a couple of exceptions, household characteristics were quite similar across buyer types and similar to other recent buyers of single and semi-detached units. Household incomes of TYPE IV buyers are somewhat lower than those of other buyer types [$24,000 versus $30,000, respectively]. The distribution of buyer types in the two cities is also somewhat different. Most TYPE I buyers were from recent buyers in Calgary. TYPE III buyers tended to be from Edmonton. The other two buyer types were fairly equally distributed between Calgary and Edmonton.

0.3.1 increasing liveability in townhouse units

Unit attributes associated with external design requirements were formulated differently for townhouse units than for the other unit types. Variances in facade and style were not evaluated given that most moderately and low priced townhouse projects in Calgary and Edmonton are typically two-storey units with project uniformity in facade treatments. Special attention was, however, paid to variances in unit and project attributes which could result in cost savings since price advantage is one of the major benefits sought by townhouse buyers.

- external design requirements - unmet design requirements external to the unit itself were mainly related to aspects of privacy, yard sizes, parking location and circulation. Preferences of buyer types vary somewhat for unit attributes associated with these requirements:
    - side-by-side attachment is preferred by all buyer types except for privacy buyers who prefer a back-

to-back attachment of four units;

  - parking close to the unit is preferred over potential cost savings of grouping parking further from the unit by all buyer types except for privacy buyers.
  - reductions in unit size are not preferred except by minimum space buyers who would prefer reduced area along with the associated cost savings.
  - block length tends to affect exterior accessibility to backyards. Preferences are generally for shorter blocks of four units. The decrease in preference from attaching side-by-side units in longer blocks is relatively minor if cost savings can be realized.

- internal design requirements - preferences for internal unit attributes are fairly consistent across buyer types. Preferences are generally increased for most buyers if a unit has the following attributes:
  - three bedrooms, one and a half baths;
  - a "U" shaped kitchen counter layout;
  - a main entry foyer with stairs next to the entry;
  - an eating area in the kitchen with an optional small dining area integrated with the living room.

- construction related requirements - perhaps somewhat surprising, but over ½ the townhouse buyers surveyed preferred cost savings attained through buyer completion of non-structural items. Both sweat equity and privacy buyers prefer the cost savings realized by completing painting and flooring to having a completed unit. Buyer completion of light fixtures and closet doors in exchange for upgraded soundproofing is also preferred by these two groups. All buyer types would pay more for upgraded insulation.

0.3.2 reducing costs in townhouse units

Considerable cost savings appear to be possible in project layout and buyer completion without reducing preferences or liveability for three of the townhouse buyer types: i.e.,

- an estimated $2500 per unit cost saving is possible by attaching units in longer rows. Preferences are only slightly reduced, except for privacy buyers, with this trade-off;
- privacy buyers prefer back-to-back attachments and grouped parking. Together these two trade-offs are estimated to save $1000 per unit;
- minimum space buyers will trade-off 200 square feet of unit area for $4000 in cost savings;
- sweat equity and privacy buyers prefer cost saving trade-offs in buyer completion. These are estimated to result in a potential $2300 saving.

0.3.3 constraints on maximizing preferences: townhouse buyers

In two areas regulatory constraints could prevent the implementation of preferred unit attributes. Preferences for trade-offs in common area for increased private open area are to some extent constrained by minimum common area requirements. Eliminating common area or a tot lot in a family oriented development is likely to meet stiff resistence from both regulatory agencies and buyer types who prefer these attributes.

Constraints on buyer completion appear to be more a matter of procedures and establishing responsibility for completion than regulatory constraints. Buyer completion is now being used in single-detached units. Applying it to townhousing requires some demonstration of market demand and increased flexibility on the part of mortgage lenders.

ALBERTA STUDY OF DESIGN TRADE-OFFS FOR MODERATELY PRICED HOUSING

1.0 INTRODUCTION

It is generally recognized that a major trend today in the production of moderate and lower priced housing is the reduction of capital input. This general movement, as exemplified by narrower lots, reduced unit sizes, increased densities, the use of less expensive materials, etc., has been promoted, in Alberta at least, by a number of factors i.e.;

- the relatively high cost of money and the generally adverse economic conditions prevelant since the early '80s have substantially reduced the purchasing power of many new home buyers;
- the high costs of the components of production, especially serviced lots, have forced builders to maintain the cost to buyers by building smaller houses on smaller lots;
- from 1979 to the present, provincial government subsidies to first-time buyers in Alberta have resulted in this market being the only major viable market for production builders. Homes built for this market must meet certain size and other design constraints set forth by government lending institutions.

The current trend of providing less product in order to keep costs in line represents, to a large degree, a reversal of trends evident throughout much of the preceding decade. As a result, a number of fundamental questions tend to arise: i.e.

- how are changes in the design of new housing affecting the liveability of these units? Are current design solutions adequately meeting household needs?

- perhaps alternative design solutions exist which would result in improved liveability without necessarily increasing costs?
- if the trend of reducing capital inputs continues, how can further cost reductions be achieved without sacrificing liveability?

In May 1982, Strategic Development Services Limited was retained by the Planning and Research Branch of Alberta Housing and Public Works to conduct a study of the design of moderately priced housing. Specifically, the study was to investigate questions of design trade-offs for moderately priced single-detached, semi-detached and row housing typical of that being produced for the new home ownership markets in the suburban areas of Calgary and Edmonton. The examination of design trade-offs was to be largely limited to those dealing with the housing unit and its lot, or in the case of row housing, the unit and its site.

In broad terms, the major objectives of the study were as follows:

- the identification of features and components which new grade-oriented housing should contain to ensure a high standard of perceived liveability and value;
- the identification of design trade-offs which will result in improved liveability at constant cost or which will maintain liveability at reduced cost; and,
- the identification of constraints acting on various aspects of housing design and production which result in suboptimal solutions to a household's housing requirements.

1.1 Conceptual Approach

From the above stated objectives, it should be apparent that a primary concern in addressing the objectives of the study is the identification of design attributes and their relationship to liveability and costs. The approach taken here in identifying design attributes has been to look at design attributes, first of all, from the perspective of design requirements; a design requirement being defined as a situation that must be present in the built environment [in this case, the housing unit and its lot], otherwise an observable human or social need would go unsatisfied.

When one considers questions of housing design and design requirements, it is obvious that one is not starting from scratch. The existence of building codes, regulations, industry practices, etc., tend to ensure that design aspects of new housing will meet at least the minimal requirements for structural soundness, health, safety and so on. It would seem reasonable to assume that most design requirements, as these have been previously defined, are being adequately met by new housing being produced today. Therefore, addressing the objectives of the study from the perspective of identifying all design requirements which *should* be met, would perhaps not be a very insightful approach.

Instead of identifying design requirements which should be met, the approach taken was to identify design requirements which were *not* being met by current practices. In other words, questions of design attributes and liveability were approached from the perspective of initially identifying design solutions which result in dissatisfaction on the part of at least some home buyers.

Given this conceptual starting point, the overall approach to the study consisted of three major stages:

(1) analysis - the identification of current design solutions or housing attributes which result in unmet design requirements;

(2) synthesis - the identification and development of alternative design solutions which attempt to meet design requirements;

(3) evaluation - the assessment of alternative design solutions in terms of consumer acceptability, cost efficiency and production feasibility.

These three stages are discussed in more detail below.

1.1.1 analysis

The major objective in the analytical stage of the study was the identification of design requirements not being met by new, moderately priced,grade access housing. Approaching the objectives of the study from the perspective of unmet design requirements was thought to have a number of advantages, namely:

- it incorporates the concept of perceived liveability and value since these are included under the rubric of design requirements;
- approaching questions of housing design from the perspective of identifying situations where design requirements are not being met was thought to be more parsimonious than trying to identify all design requirements that should be met. Correction of such design problems would also, presumably, lead more directly to improved liveability;

- since most design requirements are dependent in their solutions on other design requirements, identifying unmet design requirements necessitates the consideration of design solutions which take these dependencies into account. Such an approach results in more satisfactory solutions than if design requirements were considered independently;
- the question of design requirements for housing has been previously investigated from a number of perspectives, so considerable past experience can be drawn upon.

There were essentially three major tasks carried out in the identification of unmet design requirements:

(1) previous research and literature relevant to the topic were reviewed in order to identify important considerations of liveability and design requirements in housing. Finding past research on the relations between costs in housing design and production and trade-offs between costs and liveability was also of interest;

(2) focus group discussions were held with recent and prospective homebuyers in Calgary and Edmonton. These group discussions were considered to be an ideal method for exploring specific consumer experiences in the two housing markets and for dealing with the qualitative aspects of design requirements and potential design solutions. Interviews were also held with new home builders and planning officials in the two cities and Alberta Home Mortgage Corporation in Edmonton. The basic objective of these interviews was to identify constraints to cost reductions and/or improved liveability.

(3) the preceding two tasks resulted in the development of a list of design requirements which were not being met for at least some new home buyers. The third task in the analysis stage involved the structuring of the list of unmet design requirements into closely connected sets. These sets formed the basis of the subsequent investigations.

1.1.2 synthesis

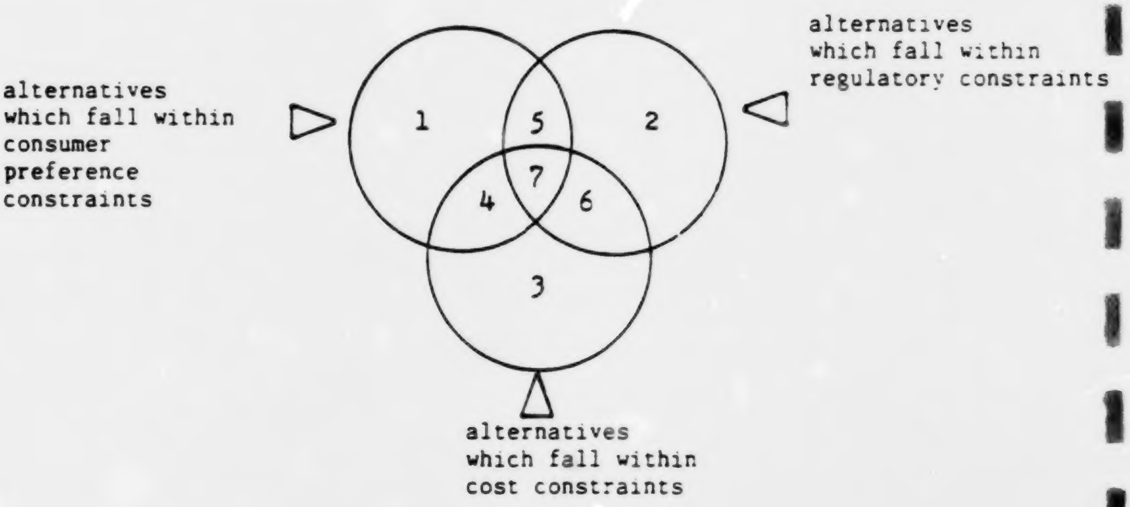
If one considers a particular set of design requirements, or rather a set of unmet design requirements, there are in most cases more than one design solution to those requirements. Theoretically, potential design solutions and variations of such solutions can be seen as being infinite or at least, unmanageably large. In practice however, the actual range of feasible design solutions or alternatives is usually much more limited due to constraints acting on the potential solution.

The synthesis stage of this study involved the development of alternative design solutions which were thought to meet the unmet design requirements or sets of unmet requirements previously identified. Within the context of the objectives of the study pertaining to costs and liveability, alternatives were developed within the framework provided by the following types of constraints:

- constraints of construction technology - only design alternatives feasible under current industry practices were considered;
- consumer budgetary and cost constraints - the attempt was made to focus attention on design alternatives which would meet unmet requirements without necessarily increasing costs or if costs were increased, to offset such increases by other alternatives in order to hold costs constant;
- consumer preference constraints - alternatives which were thought to have a low preference by consumers were also not considered. Alternatives which were of unknown preference or which were of known high preference were, of course, included;

- regulations, codes and requirements affecting the production of housing - the remaining constraint was considered to be the least restrictive on the development of design alternatives. Although alternatives were not developed to purposely contravene regulations, neither were they necessarily excluded from consideration if they did so.

When the various combinations of the design alternatives allowed by these constraints are examined, the types of alternatives become limited as shown below:


alternatives which fall within consumer preference constraints
1
5
2
7
4
6
3
alternatives which fall within regulatory constraints
alternatives which fall within cost constraints

The seven types of design alternatives feasible under current industry practices which result from the interaction of the constraints are as follows:

1. alternatives preferred by home buyers but which fall outside of cost and regulatory constraints;
2. design alternatives allowed by regulation but not within cost or preference constraints;
3. alternatives within cost constraints but not allowed by regulation nor preferred by consumers;
4. alternatives preferred by consumers and within costs but not allowed by regulations;
5. design alternatives within preference and regulatory constraints but exceeding cost constraints;
6. design alternatives within cost and regulatory constraints but not preferred by new home buyers;
7. alternatives falling within all constraints.

The objective of the synthesis stage was the development of type 7 design alternatives. Alternatives that fell within at least two of the 3 types of constraints, especially type 4 alternatives, were also considered.

1.1.3 evaluation

The development of design alternatives in the synthesis stage was largely guided by the information obtained from the analysis stage and by examining current industry practices. The resulting alternatives, in fact, did not deviate much from industry practices and essentially fell within the range of alternatives available in new housing in the Edmonton and Calgary markets. The final stage of the study was the evaluation of these alternatives.

Evaluation consisted of three main tasks: i.e.,

- surveys of prospective and recent buyers of new, moderately priced, single-detached houses and recent buyers of row and semi-detached houses were carried out in Calgary and Edmonton. The objective of these surveys was to evaluate the alternatives in terms of consumer preferences and to identify homebuyer segments based on preferences. It was assumed if a consumer preferred one alternative over another, that the preferred alternative had a higher perceived liveability and value and met the consumer's design requirements;

- a survey of builders of moderately priced housing in Calgary and Edmonton was conducted in order to assess the variance in costs of constructing various design alternatives;
- interviews were held with officials in the Building Standards Branch of the Alberta Department of Labour, Design & Construction Branch of AHMC and City of Edmonton Land Use Control Department to assess the feasibility of relaxing regulations restricting the implementation of preferred consumer alternatives.

The information obtained from these three sources resulted in the development of alternative design sets which improve liveability at constant cost and/or reduce costs without affecting liveability for specific new home buyer segments or markets.

1.2 Outline of the Report

The report is presented in seven sections:

- section 2.0 - past research and information relevant to design trade-offs in moderately priced housing are reviewed. Results of focus group discussions with prospective and recent purchasers of moderately priced new housing in Calgary and Edmonton are presented in terms of sources of dissatisfaction in the design of such housing and relationships between these unmet design requirements.
- section 3.0 - based on the findings in the previous section, unit attributes associated with unmet design requirements are identified within a framework of major types of constraints: current building practices,

regulatory constraints, cost constraints and known consumer preferences. These unit attributes are used in the development of design alternatives for the three types of housing under investigation. Design alternatives are specifically formulated to evaluate buyer preferences and trade-offs in three main attribute groupings: external design attributes, internal design attributes and construction related attributes.

- section 4.0 - buyer preferences were evaluated using a self-administered questionnaire distributed to a sample of prospective and recent single-detached unit buyers and recent semi-detached and townhouse buyers in Calgary and Edmonton. The analysis of questionnaire results in terms of buyer preferences is presented in this section.

  Cost saving trade-offs preferred by buyers were further investigated by surveying a small number of builders of moderately priced housing in Calgary and Edmonton. Results of this survey were evaluated to establish better estimates and ranges for potential cost saving trade-offs which do not cause a decline in buyer preferences. To a very limited extent some preferred trade-offs exceeded regulatory constraints. Possibilities of overcoming these constraints were investigated through interviews with representatives of government regulatory agencies.

- section 5.0 - the implications of design trade-offs in terms of increasing buyer preferences or reducing costs in moderately priced single-detached housing are presented in this section. Trade-offs for four major buyer tvpes are discussed and designs maximizing preferences are presented.

- section 6.0 - design trade-offs maximizing preferences or reducing costs without reducing preferences are summarized for semi-detached buyers.

- section 7.0 - four major buyer types were also identified for townhouse buyers. Each group of buyers is discussed in terms of trade-offs maximizing preferences and reducing construction costs.

- appendix - the final section of the report contains samples of the questionnaires used for each of the housing types. Questionnaire results are presented in the form of a statistical summary.

Section 4.0 is fairly technical in its description of the evaluation of buyer preferences. Readers wishing to skip this section can do so without too much loss of continuity except for the summaries of preferred unit attributes for each unit types. These summaries are presented in a non-numerical form in the figures included in this section.

2.0 IDENTIFICATION OF UNMET DESIGN REQUIREMENTS

Two tasks were carried out in the examination and identification of design aspects of new housing which inadequately meet the needs of households:

- a review of previous experience and research in the area;
- discussions with prospective and recent buyers of the types of housing under investigation.

Interviews were also held with builders of moderately priced housing in Calgary and Edmonton. Information from these interviews was not as helpful in identifying unmet design requirements as was initially hoped. Information on cost and regulatory constraints was obtained, however, and these will be discussed in subsequent sections of the report.

2.1 Review

The review of the literature was carried out with a number of objectives in mind. Foremost was the objective of revewing previous research dealing with questions of liveability in situations similar to the one addressed in this study. Secondly, the literature was reviewed with the objective of identifying relevent research on areas of costs in housing design and production and trade-offs between costs and liveability. The results of this aspect of the review are more applicable in the subsequent stages of this study.

The following generalized statements can be made on the basis of this literature review:

- a substantial amount of work has been carried out on the normative aspects of design of grade-oriented housing. This work deals largely with minimum standards in terms of yard spaces, internal layout, room sizes, construction standards, etc., to ensure that the design of the unit adequately meets the needs of its household.[1.*]

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* See bibliography, page 45.

- studies of household satisfaction and dissatisfaction with their housing and immediate living environment are also fairly abundant. Much of this work has concentrated on examining questions of user satisfaction with multi-family developments, many of them government sponsored projects for low income households. Studies of user satisfaction of new ownership housing, where the element of buyer choice exists, are less common. In both types of studies, however, recommendations on improvements in the built environment invariably involve increased costs.[2.]
- homebuyer preference studies are also fairly common. most of these have been conducted for the homebuilding industry with the objective of identifying buyer preferences in terms of house type and style, features, space and extras. Unfortunately, almost all of these studies have been conducted within a context of rising buyer expectations and increasing affordability and therefore are of limited benefit to the present study.[3.]
- to a more limited extent, a number of previous studies have gone beyond questions of satisfaction or dissatisfaction in housing design. These user generated design studies have considered questions of cost, liveability and trade-offs between costs and liveability. This research has however been limited to specific projects involving government sponsored multi-family housing for low income groups.[4.]
- on the questions of costs and cost savings in building design, much of the previous work in the area has centered on design efficiency. More efficient and streamlined production methods, advances in material technology , production aids and alternative construction methods have all contributed to improving design and construction efficiency without necessarily reducing liveability. It must be admitted, however, that advances in this area have been relatively slow. Rapid change has been inhibited by risks

involved in consumer acceptance, divergent and restrictive codes and the cyclical nature of the building industry itself.[5.]

- it is also recognized that perhaps the major advances to be made in cost reductions lie outside the area of the design of the unit; i.e. reductions in subdivision development costs. Methods of reducing the costs of providing serviced land for new housing are well known by the industry and include:
  - streamlining of the approval process
  - reductions in engineering standards
  - reduced requirements for recreation facilities, parks, etc.
  - reduced assessment levies
  - realistic requirements for security bonding
  - alternative arrangements for the payment of oversized services.[6.]

Subdivision development costs certainly affect the price of the lot and cost reductions in this area could probably be achieved without necessarily affecting liveability of the unit. Most of these cost reduction alternatives, however, fall outside the scope of the present study.

While previous research in the area of trade-offs involving liveability and costs is somewhat limited, especially as it pertains to housing where the household can exercise a wider choice in housing accommodation, the literature does point to areas in which household needs, as expressed by user dissatisfaction, are likely to be inadequately met by design solutions. A review of these areas can be perhaps best presented by considering them in terms of fairly broadly defined design aspects of a housing unit and its lot or site: i.e., in terms of:

- site development,
- building form,
- internal space and layout, and
- construction aspects of single-detached, semi-detached and row housing units.

(1) site development - household dissatisfactions in the area of site development tend to centre around aspects of privacy, visual appearance, density, vehicle storage and circulation in outdoor spaces. These concerns of dissatisfaction point out inadequate design solutions with respect to the development of private open spaces attached to the unit, separation spaces between units, siting of units, access to parking, location of parking, and number of parking spaces. Most of the studies in this area have been carried out on multiple family projects but it seems reasonable to expect that with the trend to higher densities in single-detached housing, similar concerns may arise.[7.]

(2) building form - in considering aspects of building form; i.e., detached, attached units, single level, multi-level, etc., household tastes tend to replace the functional aspects of housing design as an area of concern. Building form does of course have an effect on household satisfaction but mainly in terms of its constraints on other design aspects.

For example, long rows of attached units tend to be disliked by households because of the effect on visual appearance and increased circulation problems around units. Narrow and long unit shapes constrain interior layouts and room locations.[8.]

(3) internal space and layout - unit size and layout can be major sources of dissatisfaction for households. This is somewhat understandable given that most housing is not designed with the specific needs of one particular household in mind. The smaller a unit becomes in size the less flexible become the alternatives in interior living arrangements and the more likely is dissatisfaction to occur. In particular, a household's needs are likely to be compromised if space is cramped throughout the unit or the space that is available doesn't do its job. Inadequate design solutions tend to arise in secondary bedrooms, living, kitchen and eating areas. Entries, internal circulation and separation between formal and informal, private and semi-private areas are also sources of household dissatisfaction in smaller sized units.[9.]

(4) construction - household dissatisfaction with the construction of its unit tends to centre around aspects of poor workmanship and material quality. Mistakes can of course be made by the best of builders but problems of inadequate insulation and soundproofing, poor finishing and use of inferior materials on wall surfaces and flooring, poorly constructed cabinetry and sloppy workmanship seem to occur most frequently in low cost multi projects. Dissatisfaction with construction problems is often more acute than with other sources of dissatisfaction because of an inability of the household to rectify or adapt to such problems.[10.]

2.2 Discussions

The second task carried out in the examination and identification of inadequate design solutions was to conduct a number of focus group discussions with prospective and actual owners of moderately priced housing in Calgary and Edmonton.

Four group discussions were held: two in Calgary and two in Edmonton. In each city one group consisted of prospective buyers of new, moderately priced single or semi-detached units and the other group consisted of recent purchasers of moderately priced townhouse condominiums. In all cases the housing under consideration was mostly priced under $75,000 and financed through the Alberta Family Home Purchase Program. Group sizes ranged from seven to 15 participants.

The objectives in each group discussion were basically the same, that is, to identify and explore aspects of new home design where buyer needs were not being met. The discussions with the townhouse purchasers dealt with townhouse designs with which they were familiar and discussions with prospective single and semi-detached buyers dealt with designs with which they were familiar. The group discussions were also used to explore possible trade-offs which would better satisfy their needs. Results on these explorations are presented in the discussion of alternative design solutions.

By and large the discussions with prospective and existing buyers did not result in the identification of total design failures. Design aspects of new housing causing dissatisfaction varied within groups and to a lesser extent between groups. This result is not entirely unexpected when one considers the fact that these households do have a choice in purchasing a home and it would not seem reasonable to expect a household to purchase a home with which it was totally dissatisfied. Specific sources of dissatisfaction tended to overlap those found in the literature review especially in terms of parking, privacy, space, layout, workmanship and construction quality. Inadequacies in design solutions also tended to be concentrated in those areas where builders had made reductions in order to hold down costs;

i.e., lot size, yard space, room sizes, quality of materials and fixtures and buyer choice in finishing materials.

2.3 Listing of Unmet Design Requirements

Given the information obtained in the group discussions and the results of the literature review in terms of sources of household dissatisfaction with design aspects of the housing unit and its lot or site, the following represents a listing of design requirements in the production of single-detached, semi-detached and row housing units which are inadequately meeting the needs of at least some households:

1. more space should be provided for visitor parking
2. visitor parking should be closer to the unit
3. parking spaces should be clearly marked to indicate ownership
4. rear lanes should not act as areas for refuse collection and visual pollution
5. separation spaces between units should ensure privacy in the use of entries
6. separation spaces should be able to accommodate future development to increase privacy
7. access to all exterior walls of the unit should be possible
8. access to private green spaces should be possible without going through the unit
9. private open spaces should have visual privacy
10. private open spaces should be larger
11. child play areas should be fenced to restrict the wanderings of small children
12. private open spaces should ensure acoustical privacy
13. facade treatments should allow more individual identity for the unit
14. facade treatments should privide more variety in terms of roof lines and external appearance

15. every unit should have two entries
16. access from interior to outside space should allow for the movement of children
17. use of entries should not constrain activities or furniture placement in rooms adjoining those entries
18. foyer sizes should be large enough to accommodate at least three people simultaneously
19. the need to pass through rooms to enter other rooms should be minimized
20. circulation from outdoor areas to washrooms should be as direct as possible
21. wasted space in hallways should be minimized
22. living room size should be larger
23. living room shape/wall area should allow alternative arrangements of furniture
24. guests should be able to enter the living room without passing through the kitchen
25. wall fixtures; i.e., thermostats, air intake vents, plugs, should not restrict furniture placement
26. floor heating vents should not restrict furniture placement
27. space should not be wasted in the kitchen work area
28. kitchen cabinets should be of better quality
29. more storage space should be provided near kitchen work areas
30. natural light should enter the kitchen work area
31. eating area should be larger
32. visual separation should exist between kitchen work area and eating area
33. kitchen layout should accommodate future installation of additional appliances/dishwasher
34. natural light should enter the eating area

35. secondary bedrooms should be larger

36. washrooms should be easily accessible from all activity areas in the house

37. undeveloped basement space should have minimal restrictions on future development i.e. location of furnace, water heater, window size and location, beam location

38. paint on wall surfaces should be of better quality

39. ceiling finishes should be of better quality

40. floor finishes/carpeting should be of better quality

41. more choice should be allowed in finishing material choice

42. bedrooms should have ceiling light fixtures

43. soundproofing in attached units should be of better quality

44. second storey bedrooms should be better insulated against overheating in the summer

45. light fixtures and other attachments should be of better quality

46. workmanship on both interior and exterior surfaces should be of better quality.

This listing of design requirements related to dissatisfactions with the liveability of new housing are numbered only for future reference; they are in no particular order.

2.4 Analysis of Interrelationships

The objective of the investigation to this point has been to identify unmet design requirements in new, moderately priced single-detached, semi-detached and row or townhouses. The next step is to develop alternative design solutions which meet the identified design requirements without increasing costs or sacrificing liveability. In order to develop design alternatives, the previous list of 46 unmet design requirements was first analysed in terms of interrelationships so that design requirements and subsequently, design alternatives could be considered in terms of closely connected sets.

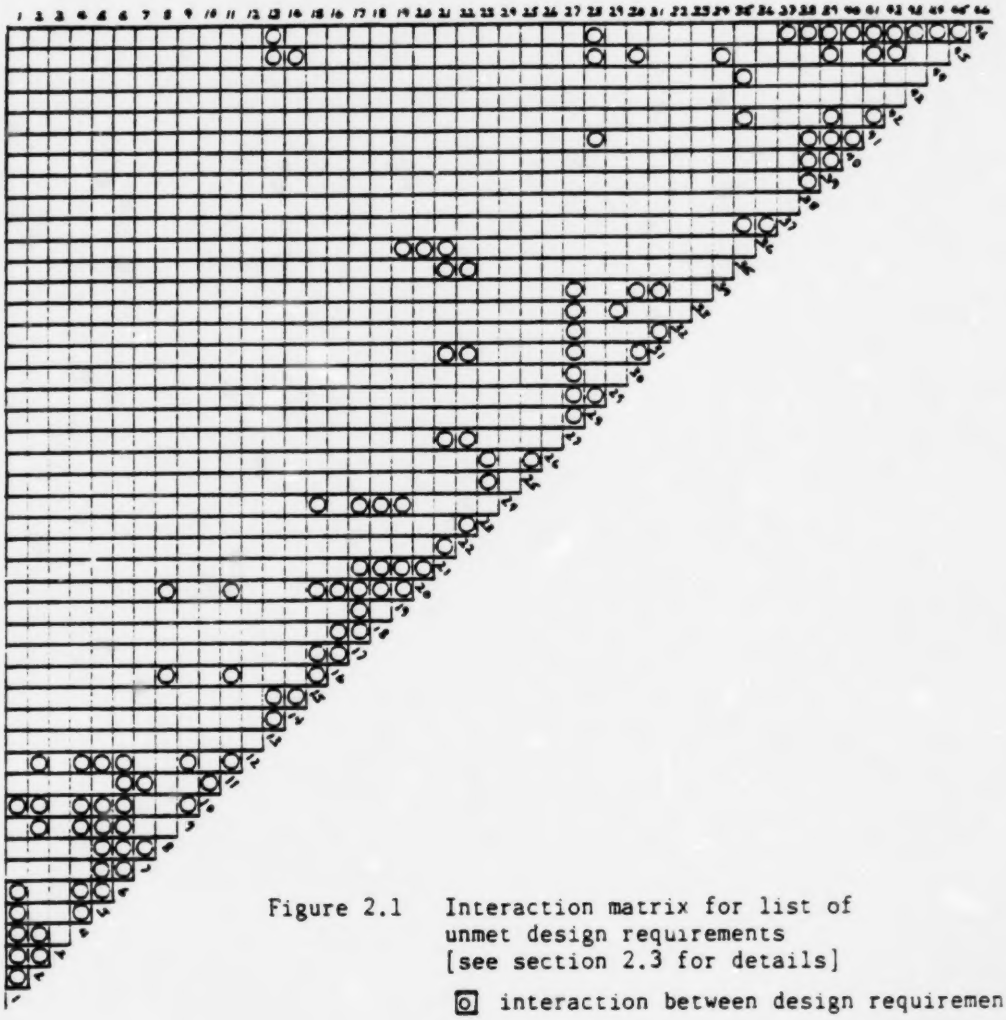


Figure 2.1 Interaction matrix for list of unmet design requirements [see section 2.3 for details]

⊡ interaction between design requirements

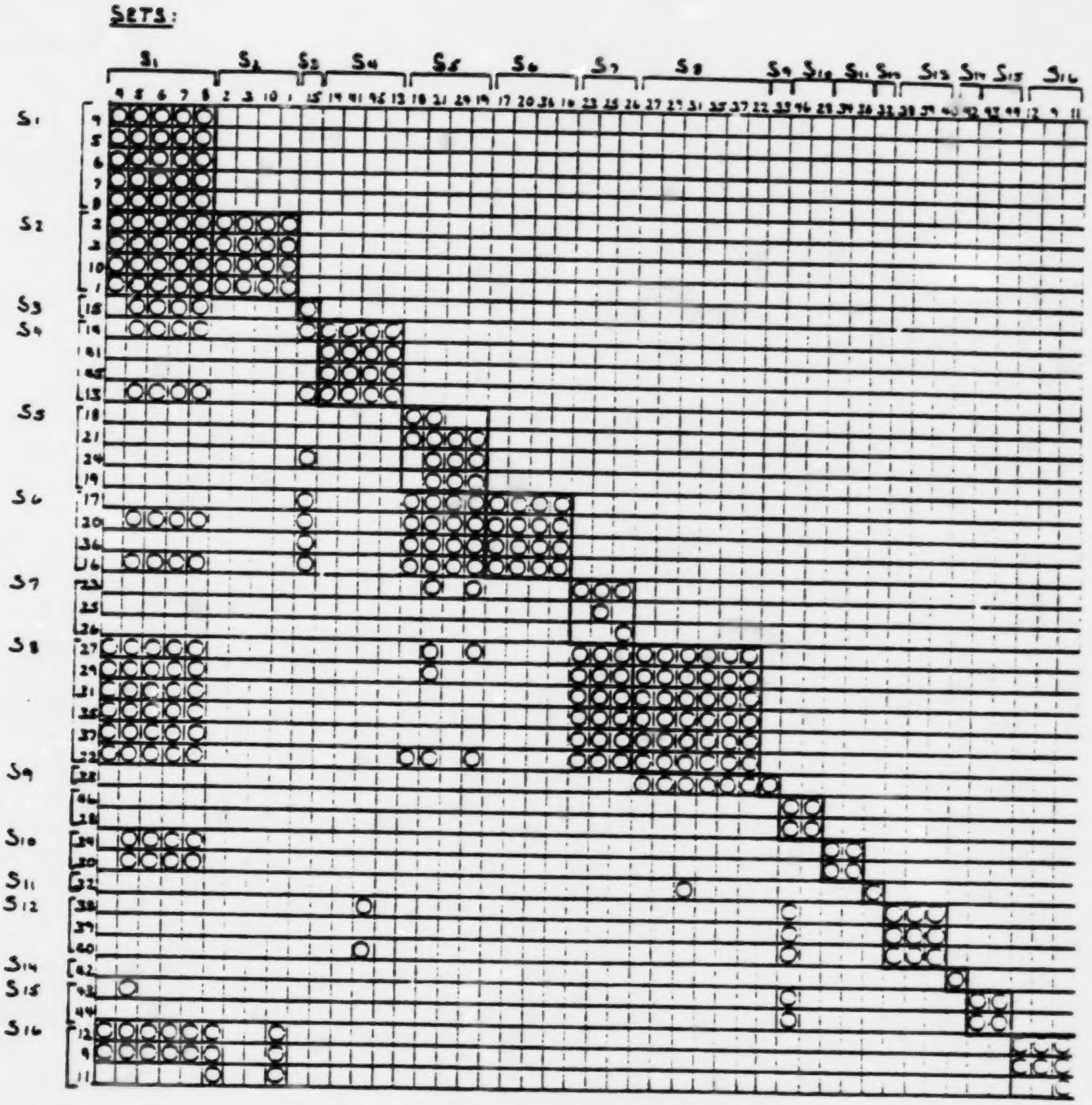

SETS:
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S14
S15
S16

Figure 2.2 Structured reachability matrix for list of unmet design requirements [see section 2.4 for details]

◙ interaction between design requirements

A relationship was defined between two unmet design requirements by considering whether or not design decisions pertaining to one requirement restricted design decisions on the other design requirement. For example, design decisions about the provision of additional visitor parking tend to restrict design decisions on where that parking can be located; decisions on separation space between units or buildings tend to restrict decisions on parking location. All the interactions between the 46 requirements were considered on this basis and the resulting configuration is shown in Figure 2.1.

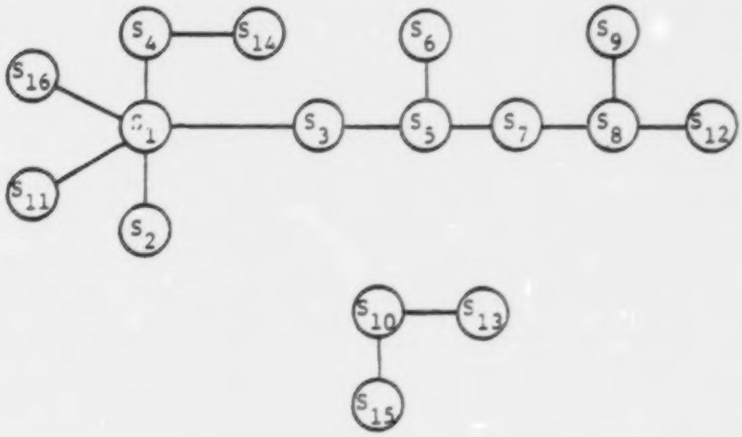
Using the assumption that the interactions between unmet design requirements are transitive, that is, if decisions on "A" restrict decisions on "B" and if decisions on "B" restrict decisions on "C" then decisions on "A" restrict decisions on "C", the relationships were structured into closely connected sets as shown in Figure 2.2.

Within the boxes outlined on the main diagonal of the matrix are closely connected requirements which can be considered as sets of requirements. The more circles there are in a box, the more interdependent the requirements are. Circles located outside these boxes show which requirements connect the various sets. For example, set 1 and set 2 are very closely connected since all the individual requirements in these two sets interact with one another. There is however no connection between set 2 and set 3 or any of the other sets, except set 16.

The structuring process resulted in the partition of the 46 unmet design requirements into 16 sets. The numbers used to identify or describe each set are the same as the listing numbers of the design requirements.

set 1 (S_1) - external circulation requirements (4, 5, 6, 7, 8)
set 2 (S_2) - external space allocation (1, 2, 3, 10)
set 3 (S_3) - number of entries (15)
set 4 (S_4) - external appearance (13, 14, 41, 45)
set 5 (S_5) - internal circulation space (18, 19, 21, 24)
set 6 (S_6) - internal circulation arrangement (16, 17, 20, 36)
set 7 (S_7) - furniture arrangement flexibility (23, 25, 26)
set 8 (S_8) - internal space allocation (22, 27, 29, 31, 35, 37)
set 9 (S_9) - kitchen layout flexibility (33)
set 10 (S_{10}) - quality of construction (28, 46)
set 11 (S_{11}) - natural lighting (30, 34)
set 12 (S_{12}) - work/eat area separation (32)
set 13 (S_{13}) - quality of surface finishes (38, 39, 40)
set 14 (S_{14}) - ceiling light fixtures (42)
set 15 (S_{15}) - insulation quality (43, 44)
set 16 (S_{16}) - outdoor privacy (9, 11, 12)

The results of the structuring exercise should not be taken as being totally inflexible. They tend to make sense in terms of their ordering and represent what is believed to be a good starting point for considering alternative design solutions. Sets of only one element are however somewhat less useful than the larger groupings. These can perhaps be better dealt with if the connections between the sets are considered; i.e.



Connections between sets result in the formation of 3 major groupings:

- S_1, S_2, S_3, S_4, S_{11}, S_{14}, S_{16}, which tend to relate to unmet design requirements outside the unit itself. S_{14} which pertains to inadequate bedroom ceiling light fixtures is connected to this group because of the relationship to fixtures in general;
- S_3, S_5, S_6, S_7, S_8, S_9, S_{12} all tend to relate to internal space, layout and circulation. The first two groups have S_3, which pertains to entries, in common;
- S_{10}, S_{13}, S_{15} are three interconnected sets distinct from the others. These sets include aspects of construction quality and workmanship.

The initial listing of 46 unmet design requirements can now be considered in terms of three major groupings of requirements made up of 16 sets of closely connected design requirements. The development of alternative design solutions to these requirements, using the framework provided by the three major groupings and 16 sets, is presented in the following section.

REFERENCES FOR SECTION 2.0

1. Sources for the normative aspects of house design are quite numerous. See for example: CMHC, Modest House Designs, 1978 or The Use and Design of Space in the Home, 1977.

2. For an example of user satisfaction in multi-family projects see: E. L. Snider, Design Evaluation of Multiple Family Accommodation for Low-Income Families with Children. An example of user satisfaction in ownership housing can be found in ERG, AHOP Review: Assisted Home Ownership and Consumer Satisfaction.

3. Professional builders' annual surveys of home buyer preferences provide an example of these types of studies. See: Bureau of Building Marketing Research, Professional Builder's Profile of the Three Prime Home-Buying Groups, 1982.

4. See: R. J. Beck and P. Teasdale, User Generated Programs for Low-rise Multiple Dwelling Housing.

5. A recent example of this is found in HUD/NAHB, An Approach for the '80s: Affordable Housing Demonstration, 1982, NAHB Research Foundation, Rockville, Maryland.

6. Relevent to Alberta is Anna Parkinson Urban Consultants, Analysis of Development Agreements for Residential Subdivisions in the Province of Alberta.

7. See: C. Norcross, Townhouses and Condominiums: Residents' Likes and Dislikes.

8. Ibid and also, CMHC, Tenant Participation in Housing Designs.

[9] See: A. Rabeneck et. al., The Structuring of Space in Family Housing, in B. M. Morrison and K. Nattrass (eds.), Human Needs in Housing: An Ecological Approach.

[10] See: AHOP Review or the C. Norcross monograph for examples of this.

3.0 DEVELOPMENT OF ALTERNATIVES

In the previous section, 16 sets of closely connected, unmet design requirements were identified. The objective in this section of the report is to present possible design alternatives or design solutions for these sets.

As was mentioned in the discussion of the conceptual approach to this study, in considering a particular set of design requirements, there is, in most cases, more than one design solution or alternative to those requirements. In order to limit the possible alternatives to a manageable number, the development of design alternatives was considered within the context of four major constraints: i.e.,

- present construction technology and building practices;
- regulations, codes and requirements affecting the design of moderately priced housing;
- consumer budgetary and cost constraints; and,
- consumer preferences.

The nature of these constraints and the limitations they place on the development of design alternatives are discussed below.

3.1 Constraints - construction technology

Aspects of construction technology and their potential impact on cost savings in the production of moderately priced housing were briefly mentioned in the section dealing with a review of the literature. This area was also investigated through a number of interviews held with builders and government officials involved in housing. The conclusions that can be drawn from both the literature and the interviews are basically the same.

For the most part, the production of housing at the present time is probably as efficient as it can be. Advances in efficiency have certainly been realized in recent years with the advent of better planning and scheduling methods and elimination of wasteful practices. However, there are no major innovations apparent in housing production that can be applied under present circumstances.

The above comments are also supported by experience in other jurisdictions. Of particular interest are the preliminary findings arising from the "Affordable Housing Demonstration" projects being jointly sponsored by NAHB and HUD in a number of U.S. cities. Major costs reductions in these projects were achieved mainly in the area of subdivision servicing costs. In comparison, savings in direct construction costs were relatively minimal. In the Las Vegas demonstration project a 26% cost reduction was achieved through lot servicing changes involving a reduction in pipe diameters for the water and sewage system, right-of-way reductions on interior streets, sidewalk width reductions, use of roll-type gutters and reductions in fencing and street lighting standards.

Direct construction costs were reduced only marginally through the use of methods and materials as for example two-stud corners using metal drywall back-up clips, standard spacing for trusses, floor joists, window widths, reduced footing thickness or width when justified, prefabricated DWV plumbing trees or polybutylene water supply plumbing. Discussions with builders did cover some of the findings of the U.S. projects. Some of the techniques used in these demonstration projects were considered to be of limited usefulness in Alberta and of questionable cost reduction benefit. Many of the savings resulting from changed subdivision standards have already been introduced to the Edmonton and Calgary markets.

In looking at the constraints of construction technology and production methods, it is apparent that alternative design solutions will not depart substantially from current designs and practices. The development of design alternatives will have to be within the following major constraints;

- lot dimensions - lower unit prices have been achieved primarily through the introduction of smaller lots in new subdivisions. Lot sizes for moderately priced new housing [i.e., around $80,000] tend to range in width from about 25 to 35 feet. Lot depths are typically around 100 feet;
- unit dimensions - moderately priced new homes in Calgary and Edmonton tend to range from a low of 900 square feet to a maximum of 1300 square feet. Unit widths are typically 20 to 25 feet with variances basically a function of unit width, siting and unit style;
- unit style - four basic styles are produced in the two housing markets; bungalows, bi-levels, split levels and two storeys. Some builders also produce one and a half storey units but these are relatively uncommon;
- materials and methods - almost all new moderately priced housing is of wood frame construction with a full, poured-concrete basement. Some houses have been built on slab foundations in the past but this method is hardly ever used now. Due to cost considerations materials most frequently used for exteriors are either stucco, aluminum or vinyl siding.

3.2 Constraints - regulations

It is generally recognized that regulations and codes governing the production of housing result in additional costs to the end product. In all the conversations held with builders in Calgary and Edmonton, a lessening of regulatory constraints was mentioned as a major method of achieving cost reductions. Regulations tend to increase cost in especially the following areas:

- subdivision development, both in terms of engineering standards and development agreements;
- duration of the approval process for subdivision development;
- servicing standards for roadways, rights-of-way, water and sewage connections;
- processing time for mortgage advances by AHMC which has been financing a major portion of the mortgages for moderately priced housing;
- duplications in inspections;
- additional design requirements by AHMC for such things as high-heel trusses or basement insulation which go beyond normal industry practices and building code requirements;
- appraisal methods in determining mortgage amounts lent which result in more costly features than are necessary, such as patio doors, being incorporated into a house.

All these aspects of regulations and codes are fairly well known and have received considerable attention in studies and special reports carried out by both government and industry. These are all areas in which cost savings are possible without necessarily affecting the liveability of new housing being produced. Yet, these are also areas which are outside the bounds of the present study.

The primary objective in considering regulatory constraints is to identify areas of conflict between buyer preferences and regulatory requirements, especially where such requirements result in increased costs. This objective cannot, however, be met until buyer preferences have been determined. Therefore, regulatory constraints on the development of design alternatives have been considered in a somewhat neutral context.

Design alternatives were not developed to specifically violate regulatory requirements, but neither were they eliminated because they did so. In most cases, staying within current building practices will result in design alternatives that also meet regulatory requirements. The major area of variance from requirements was, however, in the siting of the unit on the lot. This was due to differing requirements in Calgary and Edmonton.

Siting requirements in Calgary and Edmonton differ for single and semi-detached units and for townhousing. Although this should not be considered as a comprehensive review of the land-use by-laws in the two cities, some of the major differences, as they apply to housing built on smaller lots, are as follows:

- single and semi-detached units:[1]
  - minimum front yard setbacks
    - Edmonton: 4.5 m.; 3 m. with additional restrictions
    - Calgary: 3 m.
  - minimum side yards
    - Edmonton: minimum of 1.2 m.; depends on lane access, garage and other factors.
    - Calgary: minimum of 1.2 m.; depends on lane access.
    - Both cities allow zero lot line developments under certain conditions.
  - parking
    - Edmonton: parking space may not be located within front yard.
    - Calgary: front yard parking allowed, under certain conditions.
  - maximum site coverage
    - Edmonton: 35%
    - Calgary: 45%

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[1] Conditions apply to small lots.

- townhouse units:

• minimum front yard set backs	- Edmonton:	6 m.
	- Calgary:	3 m.
• minimum side yards	- Edmonton:	2.0 m.
	- Calgary:	1.2 m.
• private amenity areas	- Edmonton:	30 sq. m./unit
	- Calgary:	7.4 sq. m./unit
• parking	- Edmonton:	1.75 spaces/3 bdrm. unit
	- Calgary:	1 space/3 bdrm. unit.

3.3 Constraints - budgets and costs

Household budgets and building costs constitute a major constraint when considering alternative design solutions. Even though this study is concerned with moderately priced housing, the incomes of households purchasing this type of housing vary considerably. In the four focus group discussions held with prospective and recent purchasers, household incomes ranged from $8,000 to $50,000 yet all were seriously considering the purchase of or had purchased housing priced from $60,000 to $85,000. Budgetary constraints obviously vary considerably.

In considering alternative design solutions some sort of price or household budgetary constraint must however be set, otherwise, design solution alternatives will become unmanageably large. For the purposes of this study a maximum house price of $80,000 was set as the constraint. It was felt that this figure generally conformed to the maximum of moderately priced housing as it is being produced in Edmonton and Calgary at this time.

In order to stay within the price maximum, costs associated with alternative design solutions must be carefully considered. Many of the sets of unmet design requirements which were identified were related in one way or another with reductions in lot size, unit size, material quality, etc. used by builders in order to maintain costs. In these cases, design solutions could very well involve cost increases in order to satisfy design requirements. Where such increases in cost occur, costs must be decreased in other areas if the price constraint is to be maintained.

From the discussions with builders and buyers, three major areas where cost reductions could be made were identified:

- reductions in unit size - based on discussions with builders, cost savings of approximately $20 per square foot could be achieved by decreasing unit area.
- exterior facade treatment - limited cost savings, approximately in the range of $1000,could be attained by eliminating such commonly used facade features as window grills and shutters, boxed windows, chimney chase etc.
- degree of construction completion - some attempts in the past have been made to sell new homes at a pre-finished stage. Market acceptance of homes requiring the buyer to complete such things as drywalling or interior walls has been limited in Calgary and Edmonton. The discussions with buyers did however, bring out some acceptance of buyer completion of non-structural items such as painting, installing light fixtures and closet doors, installing carpeting and linoleum. Individually these items would not reduce the total price much but in total, cost savings could be on the order of $3000.

To what extent such further reductions in area, facade treatment or construction completion are acceptable to buyers will, of course, be a major concern in the evaluation of design alternatives.

3.4 Constraints - consumer preferences

The only practical way of gauging the degree to which alternative design solutions meet design requirements without actually physically producing a unit which incorporates those solutions is to examine buyer preferences. Basically the assumption has to be made that if a household prefers design solution "A" over design solution "B" then design solution "A" is a more satisfactory or more liveable alternative.

To a certain extent the listing of unmet design requirements points to design solutions not preferred by households but information on preferable alternatives is more limited. This is especially the case when one is considering design solutions which affect liveability in order to reduce costs so that other design requirements can be met. Preference constraints that have to be dealt with in order to maintain costs are really ones which lead to the question "What would you give up or trade off in order to get more of something else?".

Some guidance is however available from the literature review and the focus group discussions with potential and existing homeowners. This information is perhaps best presented in terms of the major groupings of unmet design requirements: i.e., preferences related to design requirements outside the unit itself; preferences related to internal space, layout and circulation; preferences related to construction quality and workmanship.

Two things should be mentioned before considering consumer preferences. One is that variances exist across consumers with respect to various design aspects of the unit and its lot. This is especially the case when looking at marginal design aspects in terms of more space here or less space there or more of this and less of that. Therefore, in examining preferences it must be remembered that one is usually dealing with degrees of preference rather than absolutes. The other consideration is that households considering the purchase of, or who have purchased row housing accommodation, vary in many respects in terms of preferences from single and semi-detached buyers or prospective buyers. These differences will be brought out when looking at specific preferences.

- outside unit preferences - from the information obtained in the focus groups and from what is generally known about single and semi buyers, lot sizes, separation spaces and backyard spaces are relatively important. These can be considered as design aspects for which there is a strong preference. Design aspects for which there is a large degree of variance in preference and therefore could be considered as possible trade-offs in order to maintain costs when thinking of alternative design solutions include:

  - location of on-site parking; i.e., the alternative of using the front yard has some consumer acceptance as evident in the differences between Calgary and Edmonton practices.

  - exterior attractiveness; i.e., from the information obtained in the focus group discussions it became apparent that some consumers do not place a high degree of importance on the degree of facade detailing, mix of facade materials or use of boxed or bowed windows. This is not to say that unattractive facades are preferred. The fundamental proportions, materials and color must still be kept in mind. Rather, simple facade treatments are preferred by some consumers.

  Consumers of row or townhousing tend to be somewhat more uniform in their preferences, especially when considering alternatives in design solutions which would result in cost savings in site development. Perhaps this is because they feel they have already made sufficient compromises by living in this type of accommodation. In contrast to the single and semi buyers, townhouse buyers are more resistant to design solutions involving plainer facade treatments or reductions in site development requirements. Preference variances seem to be relatively limited when considering alternative design solutions affecting design aspects outside the unit.

- inside unit preferences - consumers of single and semi-detached housing are quite similar to consumers of townhousing when it comes to preferences in internal space, layout, circulation, etc. The following tend to be areas of preference variance related to liveability:

  - entries; i.e. while most buyers have a strong preference for two entries as opposed to only one entry for the home, preference for location of entries varies (e.g. front-back vs. front-side vs. side-back)
  - room sizes; i.e. the size of rooms is usually an important design aspect for most households. What does vary is the allocation of space amongst the various activity areas in the home. Also preferences for "open" spaces tends to vary. Some households prefer the use of partitions to define living, eating and kitchen areas as opposed to more open or integrated layouts.
  - room location; i.e. the location of rooms, especially the location of bedrooms, is largely a function of unit style. Vertical separation of living and sleeping areas as is found in bi-levels or two-storey units has relatively strong buyer preference. Less variance seems to exist in living room orientation. Most households seem to prefer a front yard orientation.
  - developable space; i.e. new home buyers in Calgary and Edmonton have a strong preference for basements. Preferences for the use of basement space however, varies considerably, especially in terms of using basement space for living or sleeping areas as opposed to storage or future development.

- construction preferences - quality of workmanship and structural soundness are important considerations for all home buyers. In the process of cost reductions in unit construction many builders have opted for the use of less expensive materials and products in the home. These reductions have been such that for some buyers at least, preference is stronger for the total elimination of these lower quality aspects instead of paying for what is currently being offered. These items are all non-structural aspects of the unit.

Non-structural aspects which could be left for buyer completion and thereby reduce the initial unit cost include:

- painting of walls and staining of exterior trim
- carpeting or lino in the developed rooms of the unit
- baseboards
- closet doors and shelving
- lighting fixtures
- overhead kitchen cupboard space.

Individually, each of these items represents limited potential for cost savings but when taken together, considerable costs could be saved or traded-off against design solutions in other areas.

3.5 Unit Attributes

Constraints, previously discussed, should be considered as general bounds for the development of design solutions for the various sets of unmet design requirements. On an overall level, design alternatives will be limited to those which fall within the constraints of current industry practices as typified by the production of moderately priced housing in Calgary and Edmonton. Design alternatives will also be constrained by considerations of known consumer preference and overall unit costs. If at all possible, design alternatives will be limited to those which are within regulatory constraints.

In addition to consideration of constraints on design alternatives, specific unit attributes which are involved in the development of alternatives must also be considered. In selecting these unit attributes, the attempt has been made to consider only the minimum number of unit attributes required to result in a design alternative. Some major constraints which were set in considering unit attributes were maximum unit size, lot size and parking; i.e.,

- for single and semi-detached units:
    - lot dimensions of 30 by 100 feet;
    - maximum unit size, in terms of developed area, of 1100 square feet;
    - open parking with minimum of one parking space on a lot;
- for row housing:
    - total project size of 60 units at a minimum density of 17 units per acre;
    - maximum unit size, in terms of developed area, of 1100 square feet;
    - open parking at grade with a minimum of one parking space per unit.

Unit attributes involved in the development of design alternatives will be considered in terms of the 16 sets of closely connected design requirements grouped into the three major categories.

3.5.1 external design requirements for single & semi units

Six sets of design requirements were identified which can be considered as dealing primarily with design aspects external to the unit itself. These were:

- S_1 - external circulation
- S_2 - external space allocation
- S_3 - number of entries
- S_4 - external appearance
- S_{11} - natural lighting
- S_{16} - outdoor privacy

Unit attributes associated with these sets will be considered for single and semi-detached units and separately for row housing units.

(S_1) external circulation requirements:

For the most part, both design requirements and unit attributes involved in the development of design alternatives are quite similar for single and semi-detached units. The major difference being, of course, the presence or absence of a separation space between units. The design requirements in (s_1) as they affect single and semi-detached units are as follows:

- rear lanes should not act as refuse collection areas nor be sources of visual blight;
- separation spaces between units should be larger to enhance privacy in the use of entries;
- access should be possible to all exterior walls of the unit;
- separation spaces should be larger to accommodate future fencing/screening which increases privacy.

A minimum of three unit attributes were selected to develop design alternatives which would meet this set of requirements:

- parking access - street access to on-lot parking would eliminate the need for rear lanes. The use of a side drive does however impose restrictions on unit width and other uses of a side yard;
- unit width - a narrower unit on a 30 foot wide lot results in larger separation spaces between units and if centered on the lot, allows access to all sides of the house;
- unit shape - using an "EL" shaped unit instead of a rectangular shaped unit would allow front yard parking and provide some screening of the vehicle. This is not allowed by regulations but would eliminate the need for back lanes and allow a wider unit which still had two side yards. An "EL" shape would also be more costly than a rectangular shape.

(S_2) external space allocation requirements:

Only one requirement in this set pertains to single and semi-detached units: i.e.,

- private open spaces should be larger.

Design alternatives arise from the consideration of three unit attributes:

- front yard setback - private open areas are usually developed in the backyard. By minimizing front yard setback, backyard depth is maximized for a given unit;
- unit style - bungalows usually take up the most lot area while two storeys take up the least and hence provide larger open spaces;
- unit area - a smaller house obviously would take up less lot area and would also result in cost savings.

(S_3) entry requirements:

Again there is only one requirement in this set; i.e.,

- every unit should have two entries.

This requirement is fairly straightforward but the location of the two entries becomes a problem when other considerations such as unit width, style and parking are involved. Only one additional unit attribute was used in developing alternatives for this requirement; i.e.,

- entry location - variances in the location of two entries results in four alternatives: main entry at the front, second at the back; main entry at the front, second at the side; main entry at the side, second entry at the back; both entries on the side.

(S_4) external appearance:

The following design requirements are in the set dealing with the external appearance of the unit:

- facade treatments should allow more individual identity for the unit;
- facade treatments should provide more variety in streetscape;
- more choice should be allowed in finishing materials;
- external light fixtures and other attachments should be of better quality.

Aside from considerations of style, proportion and color, there tend to be five major considerations involved in individualizing or varying facade treatments:

(1) structural projections; i.e., boxed-out windows, chimney chases, porch-type overhangs
(2) accent materials; i.e., brick or wood trim near door and/or windows
(3) decorative attachments; i.e., window shutters, grills, planters
(4) functional attachments; i.e., exterior lights, mail boxes, house numbers
(5) roof style; i.e., variations in roof lines.

In order to simplify the development of design alternatives which meet the above requirements, the variations in facade treatment were combined into one unit attribute:

- facade treatment - two extremes in facade treatment would meet external appearance requirements. A plain facade would allow the buyer to individualise the appearance of the house by adding onto the facade. A cost saving would also be realized. Incorporating the above five facade aspects would also result in varying appearances and result in a somewhat fancier appearance. This would however, increase costs which have to be offset elsewhere.

(S_{11}) natural lighting requirements:
The two requirements in this set are:

- natural light should enter the kitchen work area;
- natural light should enter the eating/dining area.

Inadequate window area in kitchen and dining areas occurs primarily in bungalow and bi-level/split styles where separation space restrictions prohibit the use of side windows on the unit. The unit attribute involved in the development of design solutions for this set is therefore:

- side windows - windows on the side walls of units would provide more light to kitchen and eating areas although regulatory constraints may not be met and loss of visual privacy may occur.

(S_{16}) outdoor privacy requirements

The requirements in this set which pertain to single and semi-detached units are:

- private open spaces should have more visual privacy;
- private open spaces should have more acoustical privacy.

Increasing the privacy of open spaces beyond aspects of unit siting and increasing yard space or eliminating rear lanes involves the introduction of fencing of private areas. Current practice now is to leave the enhancing of open area privacy for buyer completion after purchase. For this reason additional unit attributes will not be considered in the development of alternatives for this set of requirements.

In total, 10 unit attributes were identified or selected for the development of design alternatives for external design requirements for single and semi units. The relationship between these unit attributes and the six external design requirement sets is shown below:

	design requirement sets:					
unit attributes:	S_1	S_2	S_3	S_4	S_{11}	S_{16}
a. parking access	X				X	X
b. unit width	X		X		X	
c. unit shape	X			X		
d. front yard setback		X				X
e. unit style		X	X	X		X
f. unit area		X				X
g. entry location			X	X	X	X
h. facade treatment				X		
i. side windows					X	X
j. production costs	X	X		X		X

3.5.2 external design requirements for row units

Of the six sets of design requirements dealing with aspects external to the unit itself, only three were considered as being of direct interest in the development of alternative design solutions for row or townhousing: i.e.,

- external circulation;
- external space allocation;
- outdoor privacy.

Unit styles in row housing invariably involve vertical separation of living and sleeping areas. With this type of arrangement, entry locations and natural lighting in kitchen or eating areas present no particular problem. Also, facade treatments in row housing tend to be either one of two types:

(1) the use of a uniform facade in a project which attempts to increase the attractiveness of the entire project;

(2) individual facade treatments for each unit which attempt to increase the attractiveness of the unit at the expense of project uniformity.

Almost all moderately priced townhouse developments in Calgary and Edmonton are of the former type. Introducing both types in the development of design alternatives would result in increased difficulties in obtaining cost estimates and problems in buyer evaluation due to lack of familiarity. Therefore, only unit attributes associated with the previously listed three sets of external requirements will be considered. Facade, style, entry and window locations are held constant.

(S_1) external circulation requirements:

Only one design requirement in this set is of relevance to row housing: i.e.,

- access to private open spaces should be possible without going through the unit.

Two basic ways of meeting this requirement were considered. One was to shorten the distance around the perimeter of a block of attached units by limiting the number of attached units and by varying the width of individual units. The other was to provide only one private open space or outdoor living area (O.L.A.) in front of the unit; i.e., using a back-to-back attachment.

The minimum number of unit attributes involved in developing alternatives for this requirement are as follows:

- number of attached units - having fewer units in a block will shorten the distance around the block to reach an O.L.A. from the exterior. Blocks with more units, do however, result in production cost savings. Attaching 10 units instead of 4 would save an estimated $2500 per unit;
- type of attachment - back-to-back attachment avoids the access problem altogether. Attaching units back-to-back results in an estimated $500 per unit cost saving when compared to side-by-side attachments;
- unit width - for a given unit area, the perimeter of a unit attached side-by-side will be least if length and width are equal. However, distance around the block of units will be greater. Using narrower units in a block would shorten the average distance from front entry to O.L.A. via the exterior of the unit.

(S_2) external space allocation requirements:
The design requirements in this set pertaining to row housing are:

- more space should be provided for visitor parking;
- visitor parking should be closer to the unit;
- parking spaces should be clearly marked to indicate ownership;
- private open spaces should be larger.

Identifying individual parking spaces with a unit number is really not much of a design problem; more a problem of oversight perhaps. However, the provision of more parking spaces is a different matter. Car parking can be increased by grouping parking away from the unit but at the expense of adversely affecting household satisfaction. Parking can also be increased by using less space for private open space, common open space, attaching more units together or producing smaller units.

The following attributes were considered in meeting requirements in this set:

- parking location - grouping parking away from the unit would allow extra parking space to be developed and also result in an estimated $500 per unit cost savings.
- O.L.A. size - outdoor living areas can be made larger but if costs are to be maintained less open area must be provided elsewhere;
- common area - most new projects are required to provide minimum common area, usually in the form of a tot lot. Eliminating this area could provide more private open area;
- unit area - reductions in total unit size would result in cost savings and also allow more area to be developed as O.L.A. or parking spaces.

(S_{16}) outdoor privacy requirements:

Three design requirements pertain to row housing in terms of the set of requirements associated with outdoor privacy: i.e.,

- private open areas should have visual privacy;
- private open areas should ensure acoustical privacy;
- child play areas should be fenced to restrict the movement of small children.

Fencing of play areas and partial fencing of O.L.A. is almost always done in new townhouse projects. Meeting the specific requirements of a household is perhaps best left to the household or the condominium committee of a project. The privacy of open areas could however be enhanced by design considerations; i.e.

- unit shape - an "EL" shaped unit would provide additional screening and privacy for O.L.A. Production costs would however be higher than with a simpler rectangular shape.

For row units, nine unit or project attributes were selected for the development of design alternatives. The relationship between these attributes and the three sets of external design requirements is shown below:

	design requirements sets:		
unit/project attributes:	S_1	S_2	S_{16}
a. number of attached units	X	X	X
b. type of attachment	X	X	X
c. unit width	X	X	X
d. parking location		X	X
e. O.L.A. size		X	X
f. common area		X	X
g. unit area		X	X
h. unit shape			X
i. production costs	X	X	X

3.5.3 internal design requirements

Design requirements related to internal spatial and layout aspects of the unit are:

- S_5 - internal circulation space
- S_6 - internal circulation arrangement
- S_7 - furniture arrangement flexibility
- S_8 - internal space allocation
- S_9 - kitchen layout flexibility
- S_{12} - work/eat area separation.

Design solutions or alternatives which meet internal requirements are relatively independent of unit type. Interior-exterior circulation restrictions do occur when considering attached or row units but aside from this, unit attributes involved in the development of design alternatives were essentially the same for all three unit types.

(S_5) internal circulation space requirements:
Design requirements pertaining primarily to the spatial aspects of internal circulation are:

- foyer sizes should be large enough to accommodate three people simultaneously;
- there should be minimal need to pass through rooms in order to enter other rooms;
- wasted hallway space should be minimized;
- guests should be able to enter the living room without passing through the kitchen.

These requirements tend to suggest a relatively "open" interior layout with the main entry leading to the living room. If these are taken as constraints, variances in the following unit attributes lead to design alternatives:

- entry location - for row housing locations are basically limited to the front and back of the unit. Single and semi-detached units also allow side entry locations as was discussed under external requirements;

- foyer - a larger main entry foyer would allow more persons to enter the house simultaneously but also reduce area for the living room and may be considered by some buyers to constitute a waste of space.

(S_6) internal circulation arrangement requirements:
The design requirements in this set are:

- access from inside to outside should allow for the movement of children;
- use of entries should not constrain activities or furniture placement in adjoining areas;
- circulation from outdoors to washroom should be as direct as possible;
- washrooms should be accessible from all activity areas of the unit.

The requirements for entries pertain mainly to door type; i.e., sliding patio doors off the kitchen/eating area are difficult to operate if curtains are used. They also tend to restrict furniture placement. Bathrooms are normally located near the bedroom areas and this usually presents no problems. In two-storey units, or where access to the washroom is through another room, problems do arise. In these instances, a half bath located near the second or back entry provides a solution.

The following unit attributes were considered for this set of requirements:

- entry type - a hinged second entry door would allow better access for children but at the expense of integrating spaces;

- stair location - stairs in a unit can either be located near the entry or more centrally which may provide easier access to washrooms on another level or storey.

- half bath - especially for two-storey units, a half bath near the second entry would meet many of the requirements in this set. A half bath would also result in increased production costs.

(S_7) furniture arrangement flexibility requirements;

Three design requirements are included in this set:

- living room shape should allow alternative furniture arrangements;
- wall fixtures should not restrict furniture placement;
- floor vents should not restrict furniture placement.

These requirements are primarily seen as ones which can best be dealt with through better design practices and better planning of heating and ventilation systems in the unit. Flexibility in furniture arrangement is largely affected by room shape and other unit attributes such as entry and stair location which were previously discussed.

(S_8) internal space allocation requirements:

Design requirements falling into the set dealing with the allocation of internal space can, for the purposes of identifying relevant unit attributes, be considered in terms of two types: i.e.,

(1) those dealing with the amount of space allocated to various areas of the unit;
(2) those dealing with the organization of space in the kitchen area of the unit.

Requirements dealing with the amount of space are:

- living room size should be larger;
- eating area should be larger;
- secondary bedrooms should be larger;
- undeveloped basement space should have minimal restrictions for future development.

The two requirements in this set pertaining to the organization of kitchen space are:

- space should not be wasted in the kitchen work area;
- more storage space should be provided near kitchen work areas.

If overall unit size constraints are to be met, a limited number of unit attributes present themselves in dealing with the amount of space for various rooms; i.e.,

- eating area location - an eating area combined with the kitchen would leave more area for the living room. Combined living/dining area could result in more flexibility in the allocation of space to various activities;
- room size - more area allocated to the living room would reduce other areas if overall size constraints are to be met. In 1100 square foot units, living rooms tend to average 175 square feet in area; dining areas around 75 square feet;
- bedroom number - if the number of bedrooms is reduced, more space can be allocated to a secondary bedroom. Typically, secondary bedroom sizes average 100 square feet if there are 3 bedrooms in the unit.

Area available for future basement development is to a large extent a function of unit style with bungalows having the most of such area. Design considerations are also involved, especially in the placement of equipment, and structural beams and windows.

Any number of variations in kitchen layout are possible but layouts in moderately priced units tend to be either "U" shaped or "L" shaped. The "U" shape is more efficient in terms of work space but additional cost is incurred by increased finishing costs.

Storage space is invariably provided by hanging cupboards and under-counter space. A kitchen pantry could provide alternative space to overhead cupboards. The following unit attributes were considered for the development of alternative kitchen arrangements:

- counter layout - three variations, "U" shape, "L" shape and "in-line" tend to cover the range of alternatives. Galley kitchens can be considered as two "in-line" layouts;
- kitchen storage - two alternatives considered for storage were overhead cupboards and a kitchen pantry.

(S_9) kitchen layout flexibility requirements:
The one requirement in this set pertains to the future accommodation of machines (dishwasher) in the kitchen work area. The simplest way to meet this requirement is in the design of the counter space so that a dishwasher can be installed at a future date.

(S_{12}) work-eat area separation requirements:
The requirement that some visual separation exist between the kitchen work area and the eating area can be met by variations in kitchen work space layout or location of the eating area.

Consideration of internal design requirements resulted in the selection of nine additional unit attributes. All the unit attributes involved in the development of alternatives to internal requirements are as follows:

design requirement sets:

unit attributes:	S_5	S_6	S_7	S_8	S_9	S_{12}
a. entry location	X		X			
b. foyer	X		X	X		
c. entry type		X				
d. stair location		X	X			
e. half bath		X				
f. eating area location				X		X
g. room size			X	X		
h. bedroom number				X		
i. counter layout					X	X
j. kitchen storage					X	X
k. unit style	X	X		X		
l. production costs		X			X	

3.5.4 construction related requirements

The third major group of requirements deal primarily with aspects of workmanship and quality of finishing materials in the unit: i.e.,

- S_{10} - quality of construction;
- S_{13} - quality of surface finishes;
- S_{15} - insulation quality.

Requirements in this group occur in all unit types and occur mainly because of builder attempts to reduce or maintain construction costs. To rectify problems in this group without increasing overall unit costs requires:

- reductions in unit size to compensate for increased material and/or labor costs; or,

- leaving non-structural aspects for future buyer completion and compensating buyers with cost savings in the unit price or improved quality in other areas.

(S_{10}) construction quality requirements:
Two requirements are in this set:

- kitchen cabinets should be of better quality;
- workmanship on interior and exterior surfaces should be of better quality.

The latter requirement is of course not only associated with kitchen cabinets but also with the other sets of requirements in this group.

Unit attributes selected to deal with this set were:

- cupboard style - most cupboard doors installed in kitchen cupboards are styled with some pattern. If plain, style-independent cupboard doors were used, this would simplify future upgrading by the buyer and result in some initial cost savings;
- buyer completion of kitchen storage - leaving overhead cupboard installation or pantry completion to the buyer would result in an estimated $500 cost saving which could reduce unit price or be applied to quality improvements elsewhere in the unit.

(S_{13}) quality of surface finishes requirements:
The three design requirements in this set are:

- paint on wall surfaces should be of better quality;
- ceiling finishes should be of better quality;
- floor finishes should be of better quality.

Problems with textured ceiling finishes can be met by the elimination of the same. This is being done in some newer units. Compromise is also needed if the other requirements in this set are to be met without increasing costs: i.e.,

- painting - leaving painting of interior wall surfaces for buyer completion would result in an estimated $1000 cost saving:
- flooring - leaving all floor finishing for buyer completion would result in an estimated $1300 cost saving. Using linoleum throughout the unit would save approximately $300. These savings could again be used to reduce unit price or improve quality elsewhere.

(S_{16}) insulation quality requirements:
The last set in this group includes the following two requirements:

- soundproofing in attached units should be of better quality;
- ceiling insulation for second storey bedrooms should be of better quality.

Increasing the insulation and soundproofing quality of units can be achieved by increasing costs associated with these aspects but unfortunately increased costs do not necessarily guarantee a solution. Workmanship and construction supervision also play a major role and in the case of soundproofing other requirements for fire proofing adjoining walls or distance between electrical outlets for example, contribute to the problem.

Although costs to upgrade insulation and soundproofing are quite variable, the following figures are representative:

- upgraded insulation - additional $1000 in direct construction costs;
- upgraded soundproofing - additional $500 in direct construction costs.

These cost increases could be offset by leaving for buyer completion other non-structural aspects as previously discussed or additionally items such as closet doors and light fixtures which would save approximately $700.

Unit attributes involved in the development of design alternatives to construction related requirements are shown below:

unit attributes:	design requirement sets: S_{10}	S_{13}	S_{15}
a. cupboard style	X		
b. storage completion	X		X
c. painting		X	X
d. flooring		X	X
e. closet doors and fixtures			X
f. upgraded insulation			X
g. upgraded soundproofing			X
h. production costs	X	X	X

3.6 Design Alternatives

In total, 31 unit attributes were selected or identified for use in the development of design alternatives which would meet the various sets of design requirements. How well design alternatives meet these requirements depends of course, on the preference shown by home buyers for the alternatives. In order to allow buyers to evaluate alternatives, how to present design alternatives to buyers becomes a major consideration.

One could present variations in individual unit attributes to buyers and ask them to indicate their preferences and then incorporate these preferences into the design of a unit or one could present variations in a number of attributes simultaneously for evaluation. The latter was the procedure chosen in this study because it was felt that a more "realistic" evaluation could be obtained.

Specifically, unit attributes were structured into design alternatives using a factorial design which involved the following considerations:*

- use of a full factorial design would require an unmanageably large number of alternatives in order to evaluate buyer preferences in terms of the unit attributes. A fractional factorial design, while allowing only the direct measurement of main effects, or the independent effect of an attribute on preference, required only N alternatives to evaluate N-1 attributes;
- the number of attributes included in an alternative was limited to a maximum of seven in order to minimize the difficulty in evaluation, yet still present a "realistic" alternative;
- given the factorial designs used, seven attributes allowed only eight alternatives to be evaluated at a time.
- in order to allow inferences to be made from one set of alternatives to another, a number of attributes were common across sets of alternatives;
- to maximize the efficiency of the factorial designs only a limited number of attribute values were used - values which would maximize the difference between alternatives.

Structuring design alternatives in the form of fractional factorial experiments or designs allowed the evaluation or assessment of preferences for variances in individual unit attributes in the most efficient form possible.

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*See: Addelman, S. "Orthogonal Main-Effects Plans for Assymetrical Factorial Experiments", Technometrics, Feb. 1962.

The alternatives developed for evaluative purposes are discussed below.

3.6.1 alternatives for external design requirements: single-detached units

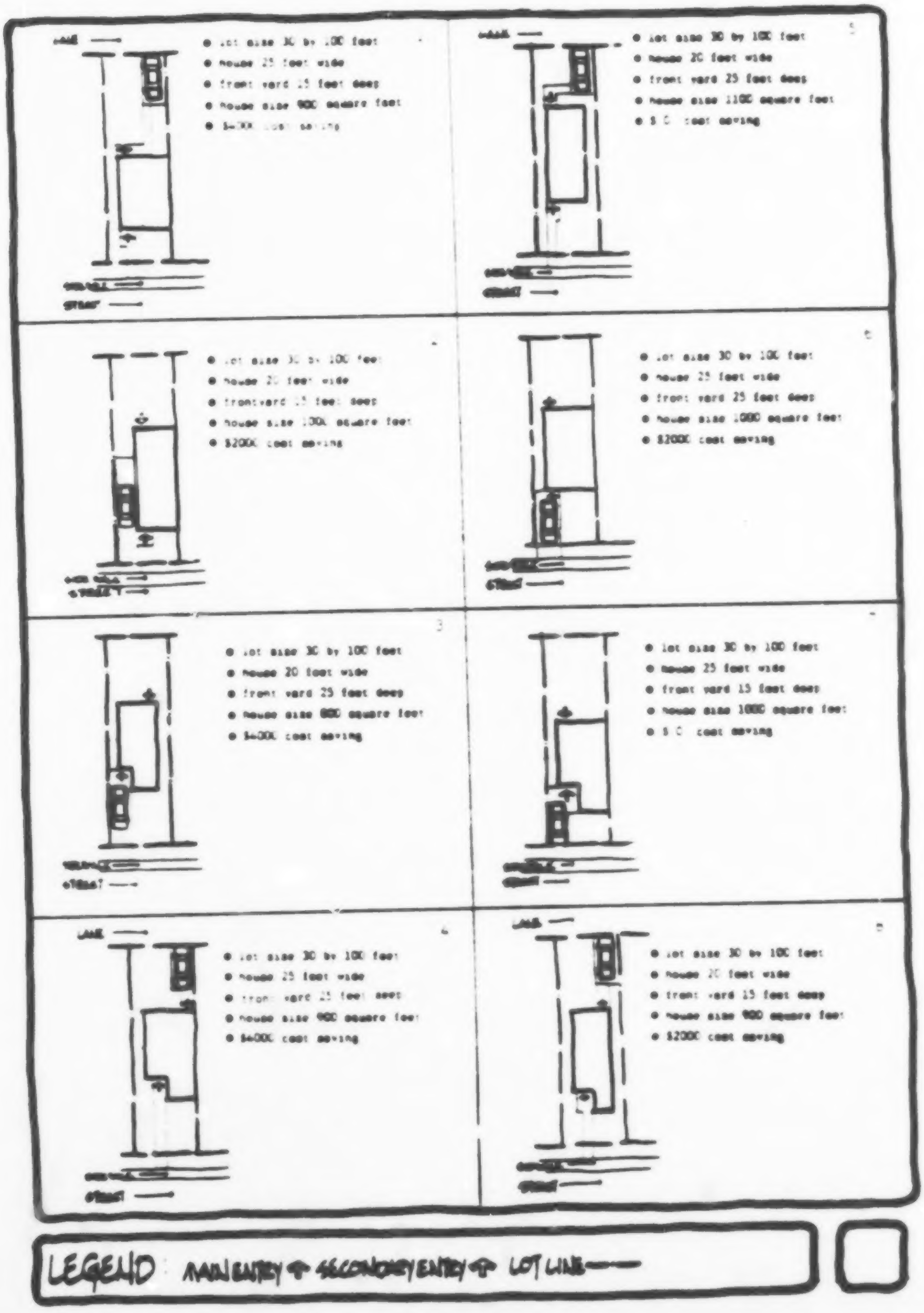
Unit attributes selected with respect to external design requirements were developed into three sets of design alternatives, with eight alternatives per set.

- Alternative Set 1 - external circulation and space allocation requirements [see Figure 3.1]

unit attributes:		design alternatives: 1	2	3	4	5	6	7	8
a. setback	0. 15 FT.	0	0	1	1	1	1	0	0
	1. 25 FT.								
b. unit width	0. 20 FT.	1	0	0	1	0	1	1	0
	1. 25 FT.								
c. unit shape	0. "EL" shape	1	1	0	0	1	1	0	0
	1. rectangular								
d. parking access	0. street	1	0	0	1	1	0	0	1
	1. rear lane								
e. area reduction	0. 0 SQ. FT.	2	1	2	1	0	1	0	1
	1. 100 SQ. FT.								
	2. 200 SQ. FT.								

All alternatives were sited on a lot with dimensions of 30 by 100 feet; entries were all front and back; style was bi-level. A unit width of 25 feet was always associated with zero lot line siting; a 20 foot wide unit was centered on the lot except in the second alternative in order to allow side drive parking. Extra costs incurred by an "EL" shape were compensated by a 100 square foot area reduction. Other reductions from 1100 square feet in area resulted in cost savings of $20 a square foot.

Figure 3.1 Alternative Set 2: circulation and space allocation requirements - single-detached units


1
LANE
SIDEWALK
STREET
5
LANE
SIDEWALK
STREET
2
SIDEWALK
STREET
6
SIDEWALK
STREET
3
SIDEWALK
STREET
7
SIDEWALK
STREET
4
LANE
SIDEWALK
STREET
8
LANE
SIDEWALK
STREET
LEGEND: MAIN ENTRY SECONDARY ENTRY LOT LINE

1
- lot size 30 by 100 feet
- house 25 feet wide
- front yard 15 feet deep
- house size 900 square feet
- $4000 cost saving

5
- lot size 30 by 100 feet
- house 20 feet wide
- front yard 25 feet deep
- house size 1100 square feet
- $ 0 cost saving

2
- lot size 30 by 100 feet
- house 20 feet wide
- frontyard 15 feet deep
- house size 1300 square feet
- $2000 cost saving

6
- lot size 30 by 100 feet
- house 25 feet wide
- front yard 25 feet deep
- house size 1000 square feet
- $2000 cost saving

3
- lot size 30 by 100 feet
- house 20 feet wide
- front yard 25 feet deep
- house size 800 square feet
- $4000 cost saving

7
- lot size 30 by 100 feet
- house 25 feet wide
- front yard 15 feet deep
- house size 1000 square feet
- $ 0 cost saving

4
- lot size 30 by 100 feet
- house 25 feet wide
- front yard 25 feet deep
- house size 900 square feet
- $4000 cost saving

8
- lot size 30 by 100 feet
- house 20 feet wide
- front yard 15 feet deep
- house size 900 square feet
- $2000 cost saving

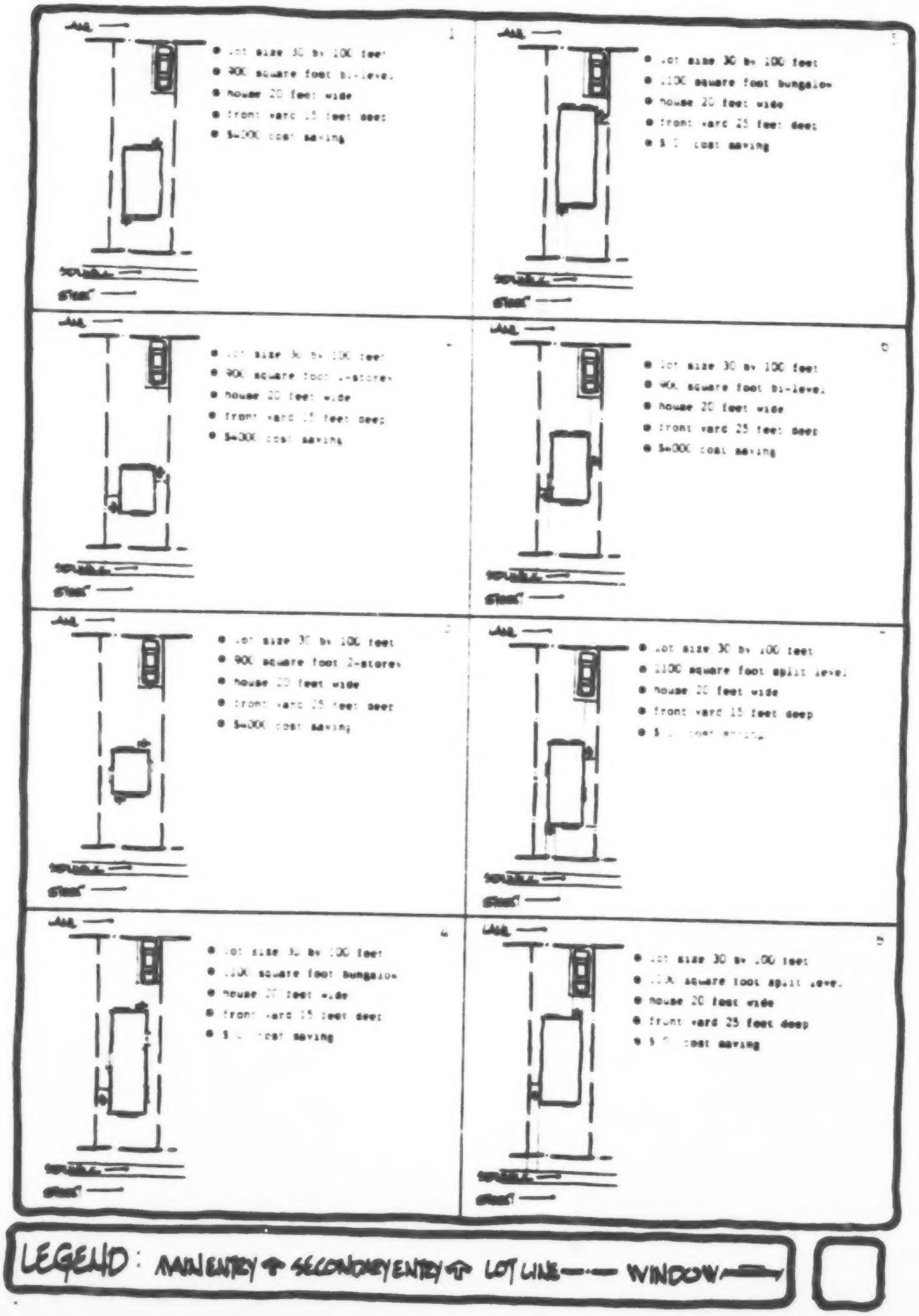
- Alternative Set 2 - entry and natural lighting requirements [see Figure 3.2]

unit attributes:		design alternatives:							
		1	2	3	4	5	6	7	8
a. set-back	0. 15 FT. 1. 25 FT.	0	0	1	0	1	1	0	1
b. main entry	0. side 1. front	1	0	1	0	1	0	1	0
c. second entry	0. side 1. back	1	0	1	1	0	0	0	1
d. side windows	0. no 1. yes	0	0	1	1	0	1	1	0
e. style 1	0. no 1. yes	0	1	1	1	1	0	0	0
f. style 2	0. no 1. yes	0	1	1	0	0	0	1	1
g. area reduction	0. 0 SQ. FT. 1. 200 SQ. FT.	1	1	1	0	0	1	0	0

Lot size was again held constant as in the previous set of alternatives; all units were centered on the lot; parking access was by rear lane only. Although style was considered in terms of four values, factorial designs require attributes to be independent of one another. Therefore, unit style had to be evaluated by using two variables; i.e.

• unit style:	bi-level	bungalow	split-level	two-storey
style 1	0	1	0	1
style 2	0	0	1	1

Figure 3.1 Alternative Set 2: entry and natural lighting requirements - single-detached units


LANE
SIDEWALK
STREET
1
lot size 30 by 100 feet
900 square foot bi-level
house 20 feet wide
front yard 15 feet deep
$4000 cost saving
5
lot size 30 by 100 feet
1100 square foot bungalow
house 20 feet wide
front yard 25 feet deep
$0 cost saving
2
lot size 30 by 100 feet
900 square foot 1-storey
house 20 feet wide
front yard 15 feet deep
$4000 cost saving
6
lot size 30 by 100 feet
900 square foot bi-level
house 20 feet wide
front yard 25 feet deep
$4000 cost saving
3
lot size 30 by 100 feet
900 square foot 2-storey
house 20 feet wide
front yard 25 feet deep
$4000 cost saving
7
lot size 30 by 100 feet
1100 square foot split level
house 20 feet wide
front yard 15 feet deep
$0 cost saving
4
lot size 30 by 100 feet
1100 square foot bungalow
house 20 feet wide
front yard 15 feet deep
$0 cost saving
8
lot size 30 by 100 feet
1100 square foot split level
house 20 feet wide
front yard 25 feet deep
$0 cost saving
LEGEND: MAIN ENTRY SECONDARY ENTRY LOT LINE WINDOW

- Alternative Set 3 - external appearance requirements [see Figure 3.3]

unit attributes:		design alternatives: 1	2	3	4	5	6	7	8
a. facade	0. plain 1. fancy	1	1	0	1	0	1	0	0
b. main entry	0. side 1. front	0	1	1	0	0	1	1	0
c. unit style 1	0. no 1. yes	1	0	1	0	0	1	0	1
d. unit style 2	0. no 1. yes	1	1	1	0	1	0	0	0
e. area reduction	0. 0 SQ. FT. 1. 100 SQ. FT. 2. 200 SQ. FT.	2	1	1	1	0	0	2	0

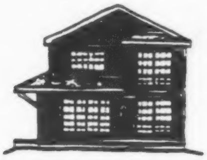
In this set of alternatives lot width was not specified. Unit width was held constant at 25 feet. A fancy facade consisted of a combination of decorative window shutters and grills, chimney chase and variations in roof elevation. To compensate for increased costs, unit area was reduced by 100 square feet. A plain facade was associated with a $1000 cost saving.

3.6.2 alternatives for external design requirements: semi-detached units

Again, three sets of design alternatives were developed in order to evaluate unit attributes associated with external design requirements for semi-detached units.

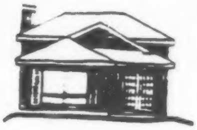
Figure 3.3 Alternative Set 3: external appearance requirements - single-detached units

1



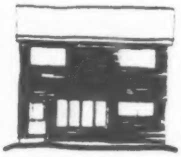
- house 25 feet wide
- 900 square foot 2-storey
- $4000 cost saving

2



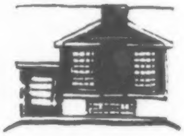
- house 25 feet wide
- 900 square foot split level
- $2000 cost saving

3



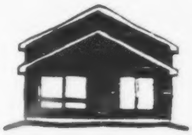
- house 25 feet wide
- 1000 square foot 2-storey
- $3000 cost saving

4



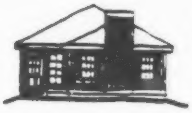
- house 25 feet wide
- 900 square foot bi-level
- $2000 cost saving

5



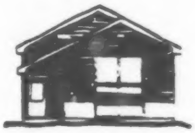
- house 25 feet wide
- 1100 square foot split level
- $1000 cost saving

6



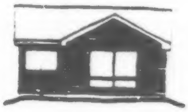
- house 25 feet wide
- 1000 square foot bungalow
- $ 0 cost saving

7



- house 25 feet wide
- 900 square foot bi-level
- $5000 cost saving

8



- house 25 feet wide
- 1100 square foot bungalow
- $1000 cost saving

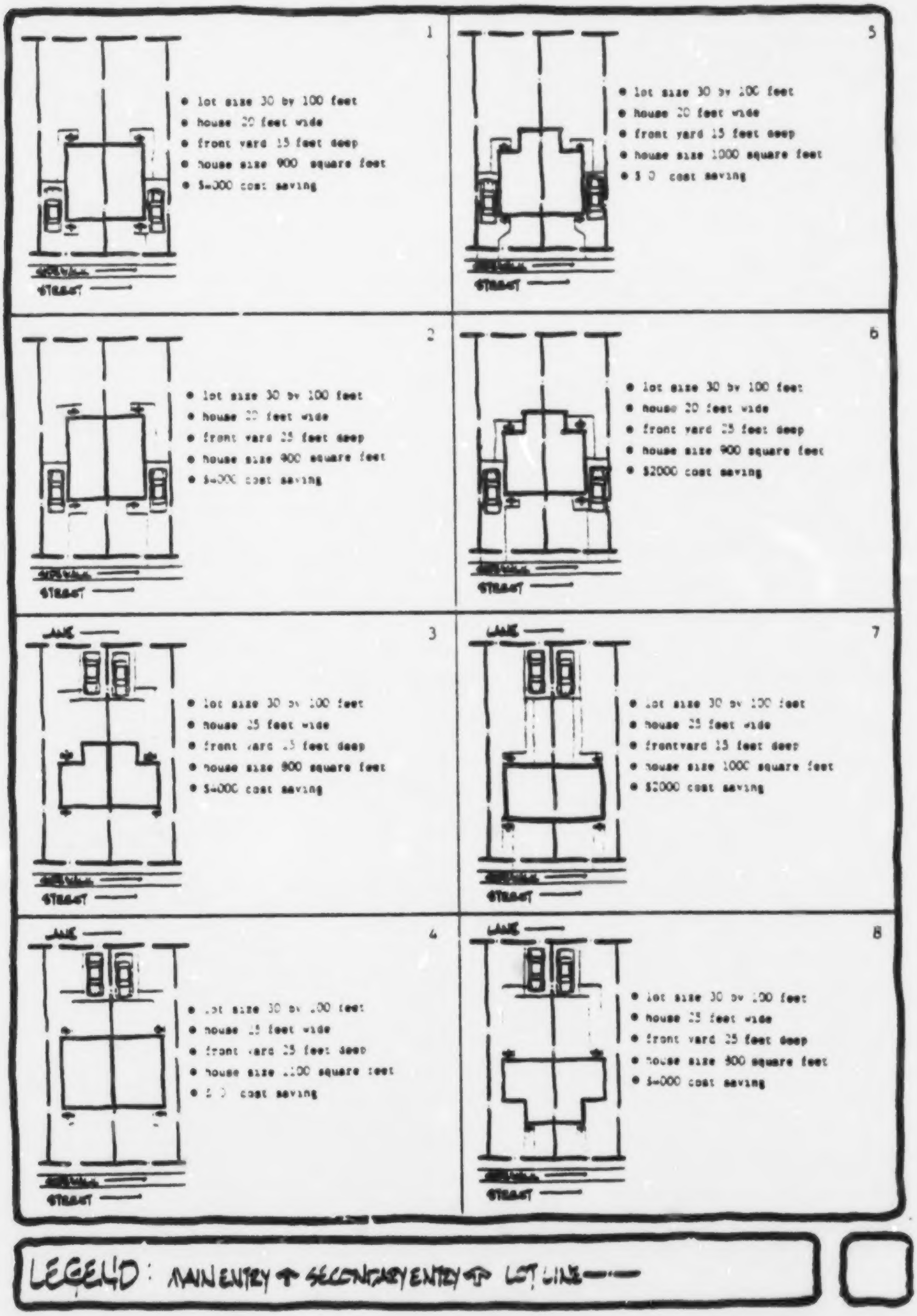
- Alternative Set 1 - external circulation and space allocation requirements [see Figure 3.4]

		design alternatives:							
unit attributes:		1	2	3	4	5	6	7	8
a. setback	0. 15 FT.	0	1	0	1	0	1	0	1
	1. 25 FT.								
b. unit width	0. 20 FT.	0	0	1	1	0	0	1	1
	1. 25 FT.								
c. unit shape	0. "EL" shape	1	1	0	1	0	0	1	0
	1. rectangular								
d. area reduction	0. 0 SQ.FT	2	2	2	0	0	1	1	2
	1. 100 SQ. FT.								
	2. 200 SQ. FT.								

Lot dimensions for all units was constant; i.e., 30 by 100 feet. All entries were front and back and unit styles unspecified. A 20 foot wide unit was always associated with street access to side-drive parking; a 25 foot wide unit with rear lane access to parking.

Additional construction costs associated with an "EL" shaped unit were compensated for by a 100-square-foot reduction in area. Other area reductions resulted in cost savings of $20 a square foot.

Figure 3.4 Alternative Set 1: external circulation and space allocation requirements - semi-detached units

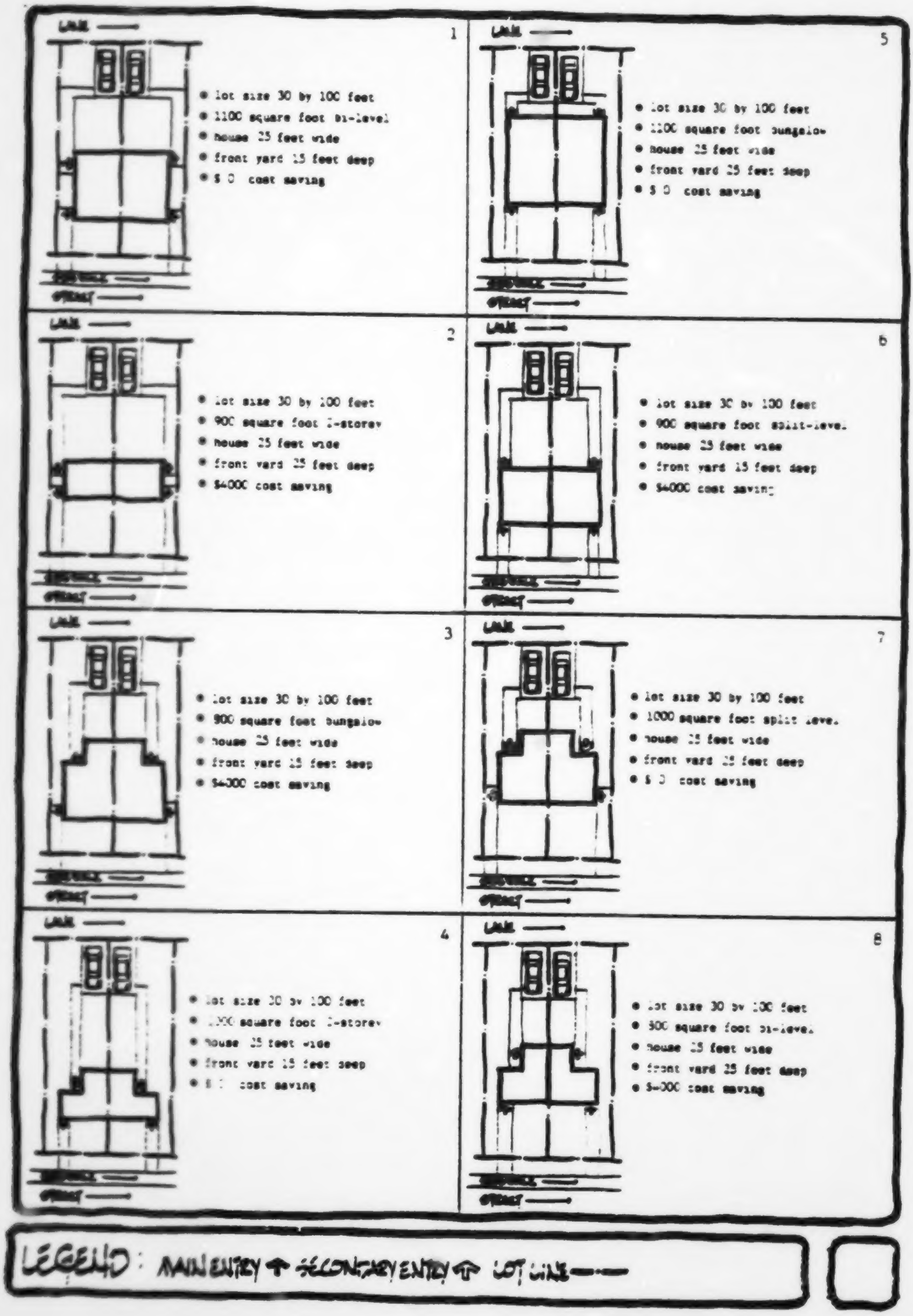

1
● lot size 30 by 100 feet
● house 20 feet wide
● front yard 15 feet deep
● house size 900 square feet
● $4000 cost saving
SIDEWALK
STREET
2
● lot size 30 by 100 feet
● house 20 feet wide
● front yard 25 feet deep
● house size 900 square feet
● $4000 cost saving
SIDEWALK
STREET
3
LANE
● lot size 30 by 100 feet
● house 25 feet wide
● front yard 15 feet deep
● house size 800 square feet
● $4000 cost saving
SIDEWALK
STREET
4
LANE
● lot size 30 by 100 feet
● house 25 feet wide
● front yard 25 feet deep
● house size 1100 square feet
● $[illegible] cost saving
SIDEWALK
STREET
5
● lot size 30 by 100 feet
● house 20 feet wide
● front yard 15 feet deep
● house size 1000 square feet
● $[illegible] cost saving
SIDEWALK
STREET
6
● lot size 30 by 100 feet
● house 20 feet wide
● front yard 25 feet deep
● house size 900 square feet
● $2000 cost saving
SIDEWALK
STREET
7
LANE
● lot size 30 by 100 feet
● house 25 feet wide
● frontyard 15 feet deep
● house size 1000 square feet
● $2000 cost saving
SIDEWALK
STREET
8
LANE
● lot size 30 by 100 feet
● house 25 feet wide
● front yard 25 feet deep
● house size 800 square feet
● $4000 cost saving
SIDEWALK
STREET
LEGEND: MAIN ENTRY ↑ SECONDARY ENTRY ↑ LOT LINE —·—

• Alternative Set 2 - entry requirements [see Figure 3.5]

		design alternatives:							
unit attributes:		1	2	3	4	5	6	7	8
a. setback	0. 15 FT. 1. 25 FT.	0	1	0	0	1	0	1	1
b. main entry	0. side 1. fron	0	0	0	1	1	1	0	1
c. second entry	0. side 1. back	0	0	1	0	1	1	1	0
d. unit shape	0. "EL shape 1. rectangular	1	1	0	0	1	1	0	0
e. style 1	0. no 1. yes	0	1	1	1	1	0	0	0
f. style 2	0. no 1. yes	0	1	0	1	0	1	1	0
g. area reduction	0. 0 SQ. FT. 1. 200 SQ. FT.	0	1	1	0	0	1	0	1

Unit attributes included in this set of alternatives were very similar to those used in the second alternative set for single-detached units. Lot size was held constant at 30 by 100 feet; parking was rear lane access only. Unit style for semi-detached units was defined as was unit style for single-detached units. Additional construction costs for an "EL" shaped unit were compensated for by a 100 square foot area reduction. "EL" shaped units were all oriented to the back yard on the assumption that more privacy would result. Area reduction was limited to two values and the previously noted cost savings again applied.

Figure 3.5 Alternative Set 2: entry requirements - semi-detached units


1
LANE
• lot size 30 by 100 feet
• 1100 square foot bi-level
• house 25 feet wide
• front yard 15 feet deep
• $ 0 cost saving
SIDEWALK
STREET
2
LANE
• lot size 30 by 100 feet
• 900 square foot 2-storey
• house 25 feet wide
• front yard 25 feet deep
• $4000 cost saving
SIDEWALK
STREET
3
LANE
• lot size 30 by 100 feet
• 900 square foot bungalow
• house 25 feet wide
• front yard 15 feet deep
• $4000 cost saving
SIDEWALK
STREET
4
LANE
• lot size 30 by 100 feet
• 1100 square foot 2-storey
• house 25 feet wide
• front yard 15 feet deep
• $ 0 cost saving
SIDEWALK
STREET
5
LANE
• lot size 30 by 100 feet
• 1100 square foot bungalow
• house 25 feet wide
• front yard 25 feet deep
• $ 0 cost saving
SIDEWALK
STREET
6
LANE
• lot size 30 by 100 feet
• 900 square foot split-level
• house 25 feet wide
• front yard 15 feet deep
• $4000 cost saving
SIDEWALK
STREET
7
LANE
• lot size 30 by 100 feet
• 1000 square foot split level
• house 25 feet wide
• front yard 25 feet deep
• $ 0 cost saving
SIDEWALK
STREET
8
LANE
• lot size 30 by 100 feet
• 900 square foot bi-level
• house 25 feet wide
• front yard 25 feet deep
• $4000 cost saving
SIDEWALK
STREET
LEGEND: MAIN ENTRY ↑ SECONDARY ENTRY ⇧ LOT LINE —·—

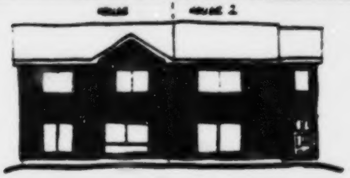
- Alternative Set 3 - external appearance requirements [see Figure 3.6]

		design alternatives:							
unit attributes:		1	2	3	4	5	6	7	8
a. facade	0. plain	0	0	0	1	1	1	0	1
	1. fancy								
b. front entries	0. one	0	1	1	1	0	1	0	0
	1. two								
c. style mix	0. 2-storeys	0	1	2	2	1	0	2	2
	1. bungalows								
	2. 2-st./bung.								
d. area reduction	0. 0 SQ. FT.	2	2	1	2	1	0	0	2
	1. 100 SQ. FT.								
	2. 200 SQ. FT.								

A consideration in the development of design alternatives for semi-detached units was whether to make the attached units appear as one large unit or two smaller units. This was done by varying the mix of styles and the number of front entries. Lot dimensions were again unspecified; a fancy facade was associated with a 100 square foot area reduction; a plain facade with a $1000 cost saving. Additional reductions in area resulted in a $20 per square foot cost saving.

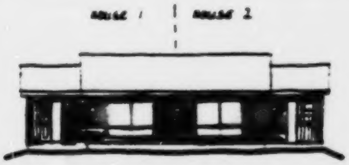
Figure 3.6 Alternative Set 3: external appearance requirements - semi-detached units

1


house
house 2

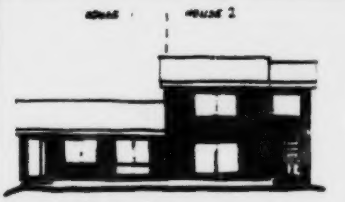
- house 25 feet wide
- house size 900 sq. ft.
- $5000 cost saving

2


house 1
house 2

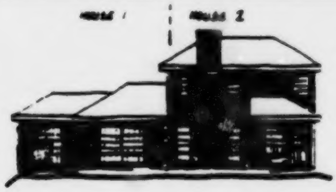
- house 25 feet wide
- house size 900 sq. ft.
- $4000 cost saving

3


house 1
house 2

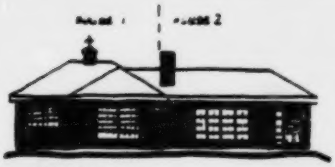
- house 25 feet wide
- house size 1000 sq. ft.
- $3000 cost saving

4


house 1
house 2

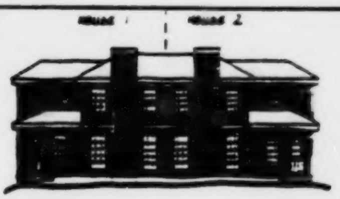
- house 25 feet wide
- house size 900 sq. ft.
- $4000 cost saving

5


house 1
house 2

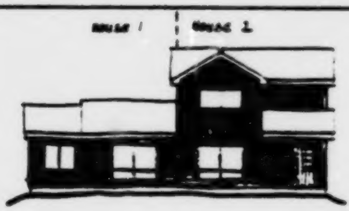
- house 25 feet wide
- house size 900 sq. ft.
- $2000 cost saving

6


house 1
house 2

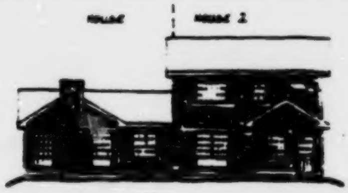
- house 25 feet wide
- house size 1000 sq. ft.
- $ 0 cost saving

7


house 1
house 2

- house 25 feet wide
- house size 1100 sq. ft.
- $1000 cost saving

8


house
house 2

- house 25 feet wide
- house size 900 sq. ft.
- $4000 cost saving

3.6.3 alternatives for external design requirements: row units

Unit attributes associated with external design requirements for row units were developed in one set of eight alternatives.

- Alternative Set 1 - external design requirements [see Figure 3.7]

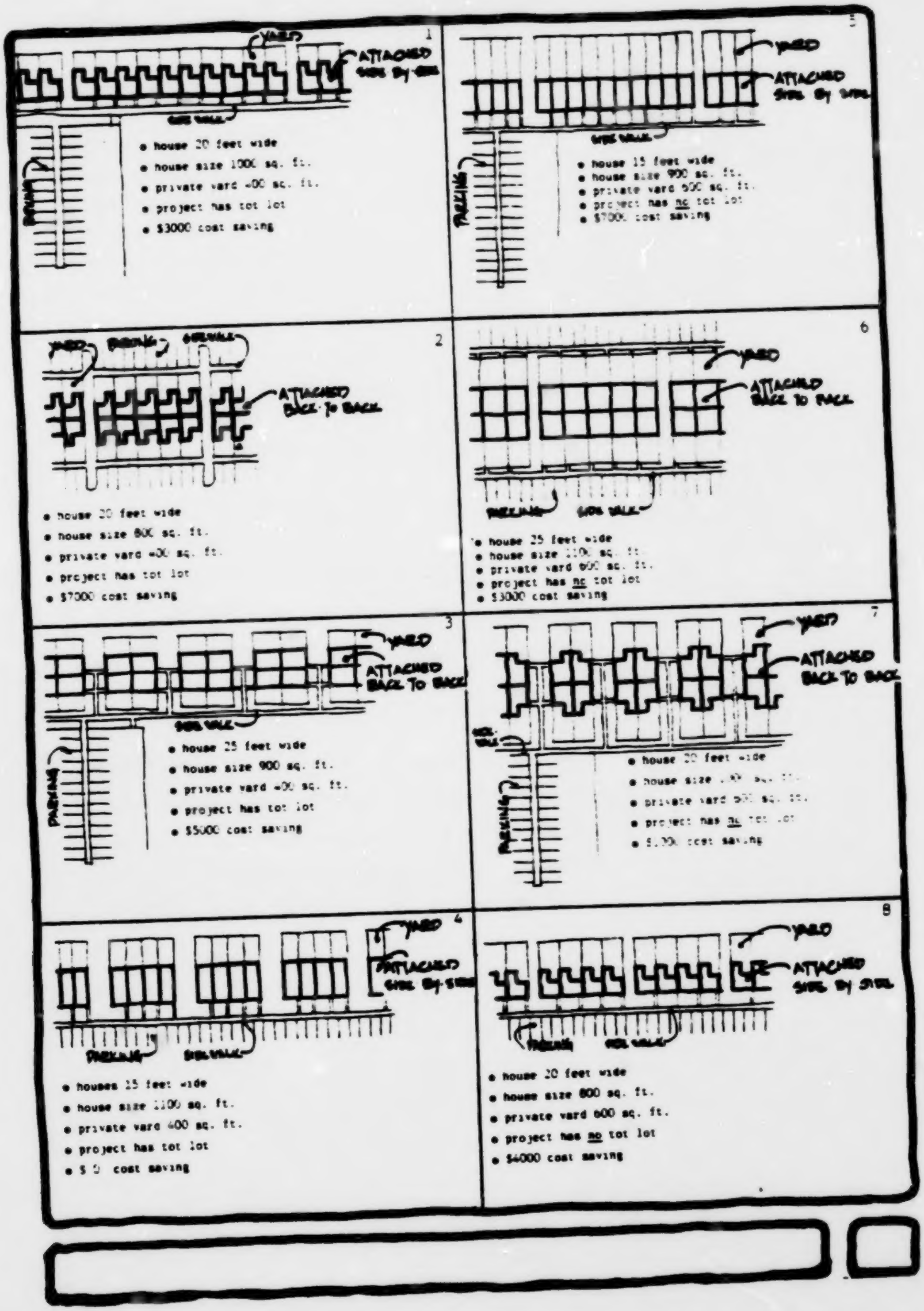
unit/project alttributes:		design alternatives							
		1	2	3	4	5	6	7	8
a. attached units	0. 4 units 1. 10 units	1	1	0	0	1	1	0	0
b. attachment type	0. side-by-side 1. back-to-back	0	1	1	0	1	0	1	0
c. parking location	0. by unit 1. grouped	1	0	1	0	1	0	1	0
d. unit shape	0. "EL" shape 1. rectangular	0	0	1	1	1	1	0	0
e. width reduction	0. 0 FT. 1. 5 FT.	0	1	0	1	1	0	1	0
f. O.L.A. size	0. 400 SQ. FT. 1. 600 SQ. FT.	0	0	0	0	1	1	1	1
g. area reduction	0. 0 SQ. FT. 1. 200 SQ. FT.	0	1	1	0	1	0	0	1

All row units developed in the alternatives were two storey units. Units attached side-by-side were 20 feet wide; units attached back-to-back were 25 feet wide. A larger private open living area (O.L.A) was associated with the elimination of a tot lot as common area for the project. The following cost savings were associated with other alternatives:

- grouped parking - $500 per unit
- back-to-back - $500 per unit
- 10 units attached - $2500 per unit
- area reduction - $20 per square foot

"EL" shaped units were oriented to the O.L.A. to increase privacy and associated with a 100 square foot area reduction.

Figure 3.7 Alternative Set 1: external design requirements - row units


1
YARD
ATTACHED SIDE BY SIDE
SIDE WALK
PARKING
• house 20 feet wide
• house size 1000 sq. ft.
• private yard 400 sq. ft.
• project has tot lot
• $3000 cost saving
2
YARD
PARKING
SIDEWALK
ATTACHED BACK TO BACK
• house 20 feet wide
• house size 800 sq. ft.
• private yard 400 sq. ft.
• project has tot lot
• $7000 cost saving
3
YARD
ATTACHED BACK TO BACK
SIDE WALK
PARKING
• house 25 feet wide
• house size 900 sq. ft.
• private yard 400 sq. ft.
• project has tot lot
• $5000 cost saving
4
YARD
ATTACHED SIDE BY SIDE
PARKING
SIDEWALK
• houses 15 feet wide
• house size 1100 sq. ft.
• private yard 400 sq. ft.
• project has tot lot
• $ [illegible] cost saving
5
YARD
ATTACHED SIDE BY SIDE
SIDE WALK
PARKING
• house 15 feet wide
• house size 900 sq. ft.
• private yard 500 sq. ft.
• project has no tot lot
• $7000 cost saving
6
YARD
ATTACHED BACK TO BACK
PARKING
SIDE WALK
• house 25 feet wide
• house size 1100 sq. ft.
• private yard 600 sq. ft.
• project has no tot lot
• $3000 cost saving
7
YARD
ATTACHED BACK TO BACK
SIDE WALK
PARKING
• house 20 feet wide
• house size [illegible] sq. ft.
• private yard [illegible] sq. ft.
• project has no tot lot
• $[illegible] cost saving
8
YARD
ATTACHED SIDE BY SIDE
PARKING
SIDE WALK
• house 20 feet wide
• house size 800 sq. ft.
• private yard 600 sq. ft.
• project has no tot lot
• $4000 cost saving

3.6.4 alternatives for internal design requirements

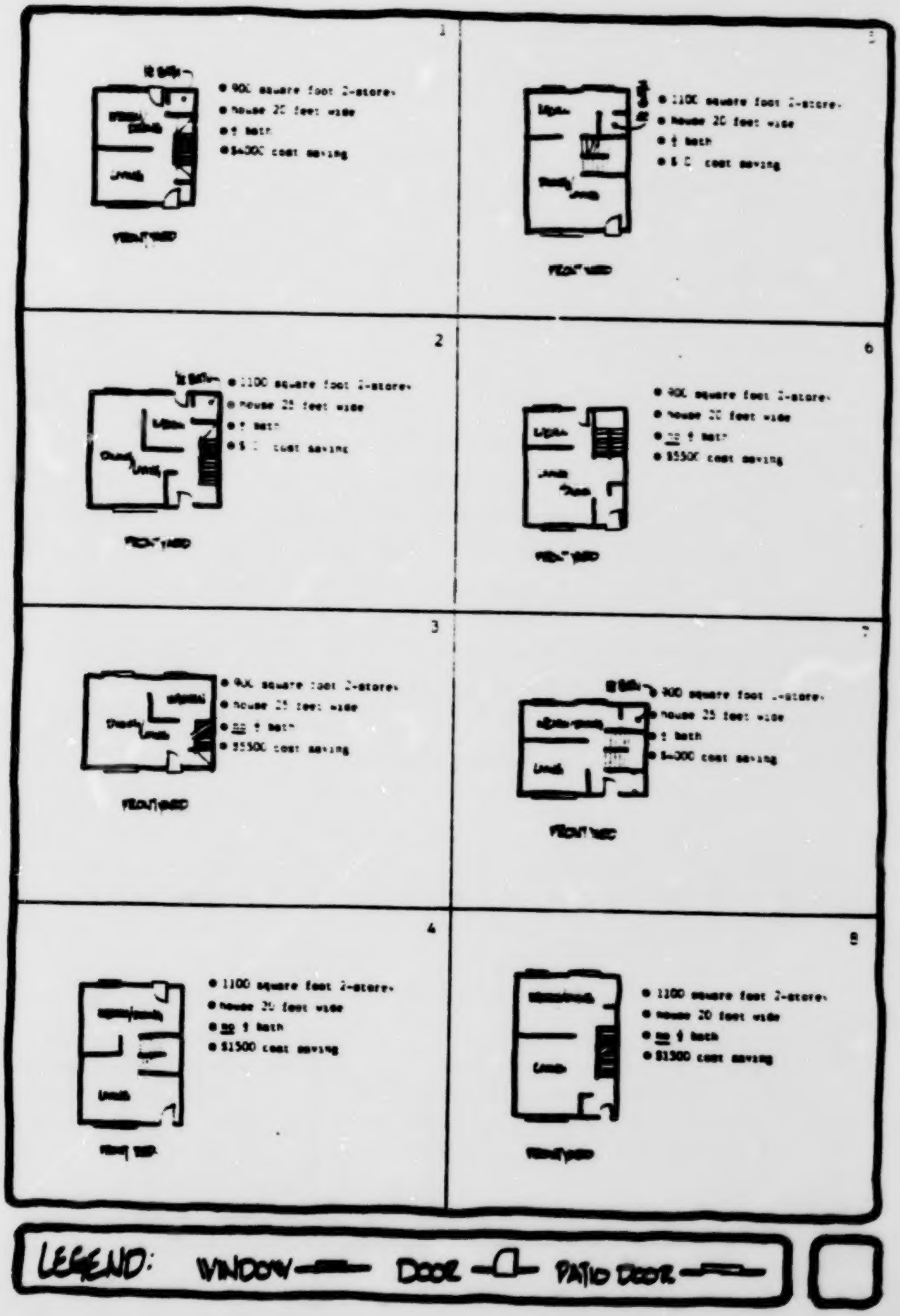
Three sets of alternatives were developed for internal design requirements. These were independent of unit type.

- Alternative Set 4 - internal circulation requirements [see Figure 3.8]

		design alternatives:							
unit attributes:		1	2	3	4	5	6	7	8
a. foyer	0. no	0	1	0	0	0	1	1	1
	1. yes								
b. unit width	0. 20 FT.	0	1	1	0	0	0	1	0
	1. 25 FT.								
c. stair location	0. central	1	1	1	0	0	0	0	1
	1. by entry								
d. eating area	0. with kitchen	0	1	1	0	1	1	0	0
	1. with living rm.								
e. 2nd entry type	0. hinged	0	0	1	0	1	0	1	1
	1. patio door								
f. half bath	0. no	1	1	0	0	1	0	1	0
	1. yes								
g. area reduction	0. 0 SQ. FT.	1	0	1	0	0	1	1	0
	1. 200 SQ. FT.								

In order to allow this set of attributes to be applicable to all three unit types, unit style was held constant by using a two-storey style and showing only the layout of the main floor. Lot size was unspecified. Entries were all front and back with the only variation being in second entry type. The elimination of the half bath on the main floor resulted in a $1500 cost saving. Area reduction was compensated for as before.

Figure 3.8 Alternative Set 4: internal circulation requirements
- all units


1
900 square foot 2-storey
house 20 feet wide
½ bath
$4000 cost saving
FRONT YARD
2
1100 square foot 2-storey
house 25 feet wide
½ bath
$ cost saving
FRONT YARD
3
900 square foot 2-storey
house 25 feet wide
no ½ bath
$5500 cost saving
FRONT YARD
4
1100 square foot 2-storey
house 25 feet wide
no ½ bath
$1500 cost saving
FRONT YARD
5
1100 square foot 2-storey
house 20 feet wide
½ bath
$ 0 cost saving
FRONT YARD
6
900 square foot 2-storey
house 20 feet wide
no ½ bath
$5500 cost saving
FRONT YARD
7
900 square foot 2-storey
house 25 feet wide
½ bath
$4000 cost saving
FRONT YARD
8
1100 square foot 2-storey
house 20 feet wide
no ½ bath
$1300 cost saving
FRONT YARD
LEGEND:
WINDOW
DOOR
PATIO DOOR

- **Alternative Set 5** - internal space allocation requirements [see Figure 3.9]

		design alternatives:			
unit attributes:		1	2	3	4
a. unit style	0. bungalow 1. 2-storey	0	1	0	1
b. living room size	0. 150 SQ. FT. 1. 200 SQ. FT.	1	1	0	0
c. number of bdrms.	0. 2 bdrms. 1. 3 bdrms.	0	1	1	0

Only four alternatives were required for the three attributes associated with internal space allocation. A larger living room reduced eating area size to 50 square feet; a smaller living room increased eating area to 100 square feet. Two bedrooms were each 200 square feet. With three bedrooms, the secondary bedrooms were each 100 square feet in area. Diagrams were not used in describing these alternatives.

Figure 3.9 Alternative Set 5: internal space allocation requirements - all units

1

DESCRIPTION

- 1100 square foot bungalow
- large living room (200 square feet)
- small eating/dining area (50 square feet)
- 2 large bedrooms (200 square feet each)

2

- 1100 square foot 2-storey
- large living room (200 square feet)
- small eating/dining area (50 square feet)
- 1 large bedroom (200 square feet) and 2 small bedrooms (100 square feet each)

3

- 1100 square foot bungalow
- small living room (150 square feet
- large eating/dining area (100 square feet
- 1 large bedroom (200 square feet) and 2 small bedrooms (100 square feet each

4

- 1100 square foot 2-storey
- small living room (150 square feet
- large eating/dining area (100 square feet
- 2 large bedrooms (200 square feet each

- Alternative Set 6 - kitchen layout/storage requirements [see Figure 3.10]

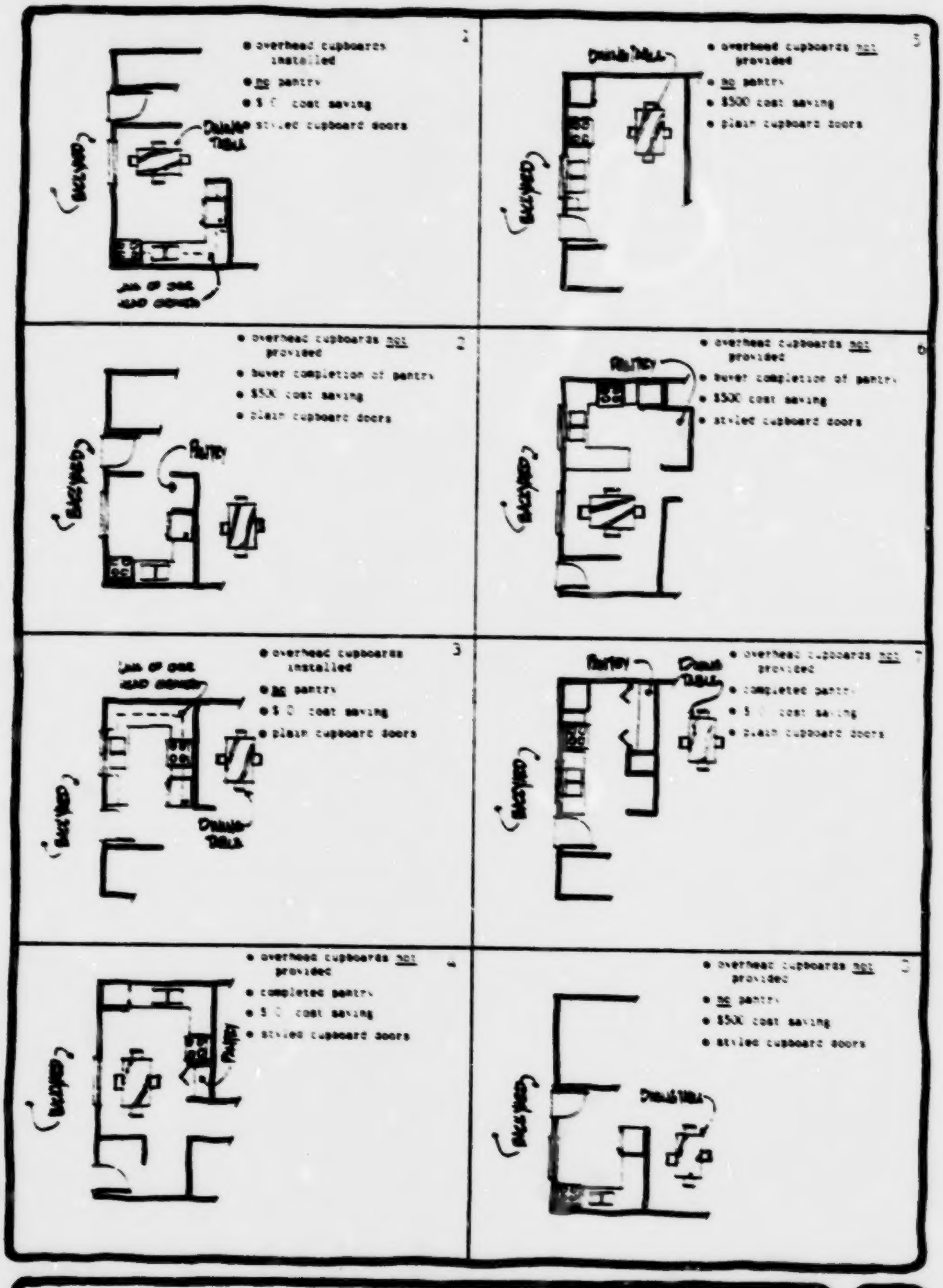
unit attributes:		design alternatives:							
		1	2	3	4	5	6	7	8
a. counter layout	0. "L"	0	0	1	0	2	1	2	0
	1. "U"								
	2. "in-line"								
b. eating in kitchen	0. no	1	0	0	1	1	1	0	0
	1. yes								
c. storage	0. overhead cpbds.	0	1	0	1	0	1	1	0
	1. pantry								
d. buyer completion	0. no	0	1	0	0	1	1	0	1
	1. yes								
e. cupboard style	0. plain	1	0	0	1	0	1	0	1
	1. styled								

Although buyer completion of overhead kitchen cupboards or pantry is perhaps more appropriately included in construction related attributes, it was decided to include it in kitchen layout alternatives in order to offset the costs of "U" shaped kitchens. Buyer completion was associated with a $500 cost saving.

3.6.5 alternatives for construction related requirements

Unit attributes associated with construction related requirements were developed into one set of three alternatives which were relatively independent of unit type.

Figure 3.10 Alternative Set 6: kitchen layout/shape requirements - all units


1
• overheat cupboards installed
• no pantry
• $ [illegible] cost saving
• styled cupboard doors
DINING TABLE
BACKYARD
LINE OF DISH. HEAD CABINETS
5
• overhead cupboards not provided
• no pantry
• $500 cost saving
• plain cupboard doors
DINING TABLE
BACKYARD
2
• overhead cupboards not provided
• buyer completion of pantry
• $500 cost saving
• plain cupboard doors
PANTRY
BACKYARD
6
• overhead cupboards not provided
• buyer completion of pantry
• $500 cost saving
• styled cupboard doors
PANTRY
BACKYARD
3
• overhead cupboards installed
• no pantry
• $ [illegible] cost saving
• plain cupboard doors
LINE OF OVER HEAD CABINETS
DINING TABLE
BACKYARD
7
• overhead cupboards not provided
• completed pantry
• $ [illegible] cost saving
• plain cupboard doors
PANTRY
DINING TABLE
BACKYARD
4
• overhead cupboards not provided
• completed pantry
• $ [illegible] cost saving
• styled cupboard doors
PANTRY
BACKYARD
8
• overhead cupboards not provided
• no pantry
• $500 cost saving
• styled cupboard doors
DINING TABLE
BACKYARD
LEGEND: RANGE REFRIGERATOR SINK WINDOW

- Alternative Set 7 - construction related requirements [see Figure 3.11]

		design alternatives:							
unit attributes:		1	2	3	4	5	6	7	8
a. painting	0. standard	1	1	0	0	1	1	0	0
	1. buyer completion								
b. fixtures	0. standard	0	1	1	0	0	1	0	1
	1. buyer completion								
c. flooring	0. standard	2	2	1	0	1	0	2	2
	1. lino throughout								
	2. buyer completion								
d. insulation	0. standard	0	0	0	0	1	1	1	1
	1. upgraded								
e. soundproofing	0. standard	0	1	1	0	0	1	0	1
	1. upgraded								

Costs associated with buyer completion of various non-structural aspects were:

• painting interior walls	- $1000
• no light fixtures or closet doors	- $ 700
• no carpet or linoleum	- $1300
• linoleum throughout the house	- $ 300

Upgraded insulation resulted in a $1000 increase in unit cost; upgraded soundproofing, which was only used in alternatives for attached units, increased unit costs by $500. Only verbal descriptions were used in developing this set of alternatives.

Figure 3.11 Alternative Set 7: construction related requirements - all units

1

DESCRIPTION

- interior of the home is not painted
- light fixtures & closet doors are installed
- carpet & lino are not included
- soundproofing is standard
- insulation is standard
- $2300 cost saving

2

- interior of the home is not painted
- light fixtures & closet doors are not included
- carpet & lino are not included
- soundproofing is upgraded
- insulation is standard
- $2500 cost saving

3

- interior of the home is painted
- light fixtures & closet doors are not included
- all floors are covered with linoleum
- soundproofing is upgraded
- insulation is standard
- $500 cost saving

4

- interior of the home is painted
- light fixtures & closet doors are installed
- all floors are covered with linoleum
- soundproofing is standard
- insulation is standard
- $ 0 cost saving

5

DESCRIPTION

- interior of the home is not painted
- light fixtures & closet doors are installed
- all floors are covered with linoleum
- soundproofing is standard
- insulation is upgraded
- $300 cost saving

6

- interior of the home is not painted
- light fixtures & closet doors are not included
- carpet & lino are included
- soundproofing is upgraded
- insulation is upgraded
- $200 cost saving

7

- interior of the home is painted
- light fixtures & closet doors are installed
- carpet & lino are not included
- soundproofing is standard
- insulation is upgraded
- $300 cost saving

8

- interior of the home is painted
- light fixtures & closet doors are not included
- carpet & lino are not installed
- soundproofing is upgraded
- insulation is upgraded
- $500 cost saving

3.6.6 attritube - alternative relationship

The 31 unit attributes, as previously discussed in this section, have been developed into seven sets of alternatives for single and semi-detached units and five sets of alternatives for row units. A summary of the interactions between the unit attributes and the sets of alternatives for each of the three types of units is shown below. Single and semi-detached units were essentially the same in terms of unit attributes and row units only differed in terms of unit or project attributes associated with external design requirements.

- single and semi-detached units:

	design alternative set:						
unit attributes:	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set 7
a. external design requirements							
1. parking access	X						
2. unit width	X			X			
3. unit shape	X						
4. setback	X	X					
5. unit style		X	X		X		
6. unit area	X	X	X	X			
7. entry location		X	X				
8. facade treatment			X				
9. side windows		X					
10. production costs	X	X	X				
b. internal design requirements							
11. foyer				X			
12. entry type				X			
13. stair location				X			
14. half bath				X			
15. eating area location				X		X	
16. room size					X		
17. bedroom number					X		
18. counter layout						X	
19. kitchen storage						X	
20. entry location		X	X				
21. production costs				X		X	
c. construction related requirements							
22. cupboard style						X	
23. storage completion						X	
24. painting							X
25. flooring							X
26. closet doors and fixtures							X
27. upgraded insulation							X
28. upgraded soundproofing							X
29. production costs							X

- row units:

	design alternative set:						
	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set 7
a. external design requirements							
1. number of attached units	X						
2. type of attachment	X						
3. unit width	X						
4. parking location	X						
5. O.L.A. size	X						
6. common area	X						
7. unit area	X						
8. unit shape	X						
9. production costs	X						
b. internal design requirements							
10. foyer				X			
11. entry type				X			
12. stair location				X			
13. half bath				X			
14. eating area location				X		X	
15. room size					X		
16. bedroom number					X		
17. counter layout						X	
18. kitchen storage						X	
19. entry location		X	X				
20. production costs				X		X	
c. construction related requirements							
21. cupboard style						X	
22. storage completion						X	
23. painting							X
24. flooring							X
25. closet doors and fixtures							X
26. upgraded insulation							X
27. upgraded soundproofing							X
28. production costs							X

4.0 EVALUATION OF DESIGN ALTERNATIVES

The objective in developing alternative design solutions, as presented in the previous section, was to allow the evaluation of buyer preferences with respect to the variations in unit attributes. An assessment or evaluation of buyer preferences will allow the identification of design trade-offs which result in increased preference or liveability without necessarily increasing costs and those which reduce costs without decreasing liveability.

Three tasks were involved in the evaluation of the design alternatives:

- an assessment of new home buyer preferences with respect to design alternatives and the importance placed on the various unit attributes:
- variances in cost savings associated with various design alternatives were assessed by examining builder experience in direct construction costs with such alternatives;
- regulatory constraints which prevent the implementation of design alternatives preferred by homebuyers were examined with respect to the feasibility of changes in such regulations.

The evaluation of the design alternatives in terms of homebuyer preferences was essentially carried out in the same way for each of the three unit types under investigation. The basic assumption made was that by asking homebuyers to rank the alternatives in each of the sets in the order of their preference, these subjective responses could be transformed into estimated "importances" attached to individual unit attributes making up each of the alternatives. Specifically, the preference or rank shown for a particular alternative was assumed to be an additive function of the independent unit attributes used in that design alternative.

Techniques which employ such assumptions in estimating consumer preferences are commonly included under the term of "conjoint" analysis. In this study, the estimation of the "importances" or the partial contribution of each attribute to the preference given by a consumer to an alternative was through the use of ordinary least squares or multiple regression. Using this method of calculating "importances" required the assumption that the ranking of alternatives resulted in an interval scale or at least a fairly robust ordinal scale.

By way of example, estimates of the importance of unit attributes in a particular set - set 1 which deals with external circulation requirements - would be obtained by asking a homebuyer to rank the eight alternatives in this set in order from most preferred to least preferred.

For single-detached units, four unit attributes each with two values and one attribute with three values were included in this set. A regression, with preference rank as the dependent variable and the unit attributes as the independent variables, results in regression coefficients for each of the unit attributes. These regression coefficients can be interpreted as the importance of each of the unit attributes in making up the preference for a particular alternative in this set.

The actual method used in presenting the various sets of alternatives to homebuyers was by incorporating them into a self-administered questionnaire which was distributed to a sample of prospective and recent homebuyers in Calgary and Edmonton.

The evaluation of the various alternatives in terms of cost savings was also done through the use of a self-administered questionnaire sent to builders of moderately priced housing in Calgary and Edmonton. The cost savings associated with the various design alternatives were initially obtained in the discussions with builders during the early stages of the study. The objective of the questionnaire was to confirm the costs used in the alternatives and provide an estimate of the range in which the cost savings are likely to fall.

Evaluating the feasibility of changes in regulations constraining the implementation of preferred consumer alternatives was done through a limited number of interviews with government officials.

4.1 Single-Detached Units

The evaluation of consumer preferences was done separately for each of the three unit types. The questionnaire developed for design alternatives in single-detached units was administered to two types of households in Calgary and Edmonton:

- approximately 190 questionnaires were handed out in each of Calgary and Edmonton to visitors of moderately priced showhomes. Potential respondents were first screened as to their homebuying intentions and the price range in which they intended to buy. In both Calgary and Edmonton, the objective was to obtain responses from prospective buyers of moderately-priced (under $85,000) new homes. A total of 116 responses from Edmonton home shoppers and 85 responses from Calgary shoppers were received after a second mailing of the questionnaire to non-respondents of the initial handout;
- in order to provide a possible comparison to the preferences of prospective buyers, a sample of 200 households was taken in each of Calgary and Edmonton. The selection criterion for these households was that they had purchased a new, moderately priced single-detached home within the last 12 months. If at all possible, lot sizes and unit characteristics were similar to the showhomes where prospective buyers were contacted. In Edmonton, recent buyers were chosen from the Burnewood subdivision, a recent small lot development. In Calgary, recent buyers had to be

selected from a number of areas, mostly in the north-east and south-east quadrants of the city. In total, 94 responses were received from recent buyers in Edmonton; 93 from recent buyers in Calgary. Again, two mailings of the questionnaire were used.

The questionnaire for single-detached units consisted of questions covering three major areas:

- preferences with respect to the seven sets of design alternatives;
- importance ratings of individual unit attributes considered independently of one another;
- general household and respondent characteristics.

The results of the analysis of the survey of prospective and recent buyers of moderately priced, single-detached units are presented below.

4.1.1 household types: single-detached units

As an initial step in the analysis of buyer preferences in single-detached units, survey respondents were classified into homogeneous groups on the basis of the "importances" they placed on individual unit attributes. Rankings given to the alternatives in each of the design alternative sets were first transformed into "importances" (regression coefficients) assigned to the unit attributes by using ordinary least squares. This resulted in 35 coefficients or measures of importance for the unit attributes for each respondent. In order to classify respondents into homogeneous groups, the number of coefficients was reduced to seven orthogonal or independent principal components which were then submitted to hierarchical and non-hierarchical clustering techniques from which four homogeneous groups or preference types resulted.

The classification of consumers into market segments is not at all new to the area of housing. Typically, buyers are segmented on the basis of unit price or household composition. In this study, the use of such classification would be of limited usefulness given that the focus of the study is primarily on first-time buyers of new homes within a relatively restricted price range. Grouping or segmenting buyers on the basis of preferences results in more useful information especially in terms of identifying major "preference sub-groups" within what can be considered as the first-time buyer market segment.

The four buyer or preference types which resulted from the analysis can be defined on the basis of differences in preferences for selected unit attributes; i.e.,

- TYPE 1/maximum space buyers - new home buyers in this group were distinguished from other single-detached buyers by the high preference placed on on total unit size;
- TYPE 2/style buyers - unit style is important to most buyers but especially so for buyers in this group;
- TYPE 3/facade buyers - a fancy facade treatment has a very high perceived value amongst these buyer types;
- TYPE 4/minimum price buyers - buyers in this group are willing to make considerable trade-offs in order to realize savings on the total unit price.

Given the basis upon which the groups were defined, differences amongst the four household or buyer types were primarily in terms of preferences for certain unit attributes.

Differences in household characteristics, as measured by the questionnaire, were relatively minimal: i.e.,

- TYPE ONE/MAXIMUM SPACE BUYERS:
[20% of respondents]

• average household size		2.9 persons
• marital status	1. married	88%
	2. single	8%
	3. other	4%
• average household income		$32,000
• average age of respondent		29 years
• present tenure	1. rent	30%
	2. own	70%

Households which were classified as maximum space buyers were typically young married couples about half of which had one or two children in the household. Most (70%) owned their home which meant that about 20% of the prospective buyers included in this group were looking for their second or third home. Households in this situation were mostly living in single-detached units or townhouse condominiums.

- TYPE TWO/STYLE BUYERS:
[23% of respondents]

• average household size		2.8 persons
• marital status	1. married	82%
	2. single	14%
	3. other	4%
• average household income		$36,000
• average age of respondent		28 years
• present tenure	1. rent	35%
	2. own	65%

Style buyer households were very similar to TYPE ONE buyers in terms of household characteristics. Most households in this group were young married couples, 58% of whom had no children in the home. Average household income was slightly higher than TYPE ONE buyers. There were more two income households in the TYPE TWO group [61% vs. 55%, respectively].

- **TYPE THREE/FACADE BUYERS:**
  [32% of respondents]

• average household size		2.8 persons
• marital status	1. married	81%
	2. single	10%
	3. other	9%
• average household income		$36,000
• average age of respondent		28 years
• present tenure	1. rent	40%
	2. own	60%

Approximately one third of the prospective and recent buyers of single-detached units were classified as facade buyers. The only difference with this group of households is the slightly greater proportion of prospective buyers in this group as compared to other groups.

- **TYPE FOUR/MINIMUM PRICE BUYERS:**
  [25% of respondents]

• average household size		2.9 persons
• marital status	1. married	88%
	2. single	8%
	3. other	3%
• average household income		$31,000
• average age of respondent		28 years
• present tenure	1. rent	28%
	2. own	72%

Households in the TYPE FOUR buyer group tend to be slightly more likely to own their present home than households in the other groups. Aside from this however, differences in household characteristics are relatively minimal. Household income is slightly lower even though the proportion of two income households is similar to other groups.

Overall, the household characteristics of the four buyer types are much the same. Given that households included in the survey were all either looking for similar priced housing or had recently purchased moderately priced housing, this is perhaps not too surprising. Essentially, the similarity in household characteristics tends to suggest that differences in preferences are relatively independent of household characteristics. It also suggests that preferences in single-detached housing are similar for prospective and recent purchasers. This latter implication is brought out in the distribution of survey respondent type in terms of the four buyer types: i.e.,

	buyer type:			
respondent type:	TYPE ONE	TYPE TWO	TYPE THREE	TYPE FOUR
• Edmonton shoppers	30%	29%	33%	28%
• Edmonton recent buyers	23%	25%	20%	31%
• Calgary shoppers	22%	20%	25%	16%
• Calgary recent buyers	25%	26%	22%	25%

4.1.2 external design preferences: single-detached units

Two types of questions were used in the questionnaire to evaluate the importance of various unit attributes and preferences for specific values of those attributes which were associated with unmet design requirements:

- respondents were asked to rate the importance of selected attributes on a scale from one to seven where one meant not at all important in terms of a decision to buy a particular home and seven meant absolutely crucial to the home purchase decision;
- respondents were asked to rank the alternatives in each of the seven sets of alternatives from most liked to least liked, assuming that the things not shown were to their liking. Any cost savings associated with an alternative were to be considered as an amount taken off

the maximum price they could afford. Respondents were asked to avoid giving two alternatives the same rank.

The analysis of the responses to these questions is presented in terms of the four buyer types for each of the major design requirement groupings.

The 10 unit attributes associated with external design requirements for single-detached units were somewhat more finely defined for the purpose of obtaining importance ratings:

- unit style
- backyard size
- front yard size
- side yards on both sides of the unit
- type of parking access
- main entry location
- second entry location
- windows on all four sides of the unit
- total unit size
- saving money on total unit price
- structural facade features
- decorative facade features
- unit width
- lot width.

The average rating or importance given to each of these attributes was quite similar for each of the four buyer types; i.e.,

	TYPE ONE	TYPE TWO	TYPE THREE	TYPE FOUR
• very great importance:	price area	price	price	price
• very important:	pkg. access lot width style backyard unit width	pkg. access area lot width backyard style unit width	pkg. access area lot width backyard style unit width main entry	pkg. access area backyard lot width style
• fairly important:	main entry struc. facade side yards windows 2nd entry dec. facade	struc. facade main entry side yards windows front yard	struc. facade side yards windows 2nd entry front yard dec. facade	main entry struc. facade side yards windows
• of little importance:	front yard	2nd entry dec. facade		2nd entry front yard dec. facade

Almost all the unit attributes were rated as being at least fairly important by single-detached buyers. Attributes associated with overall unit and lot dimension were generally rated as being very important. Entry locations, windows and facade treatment were generally rated as being of lesser importance. All buyer types rated saving money on the price of the house as being the most important item in deciding whether or not to buy a particular house.

Although the importance ratings do not provide much differentiation amongst the buyer types, they do indicate that the unit attributes chosen in the development of design alternatives are at least important to the purchase decision. Preferences for the unit attributes associated with external design requirements were measured using three sets of design alternatives with each set of alternatives involving a limited number of attributes. The average regression coefficients or "importances" assigned by each buyer type to selected attribute values in these sets are shown below:

• alternative set 1	TYPE ONE	TYPE TWO	TYPE THREE	TYPE FOUR
a. 25 FT. setback	-0.18	-1.25	0.17	-1.46
b. 25 FT. unit width	0.12	0.19	-0.32	0.23
c. rectangular unit shape	0.67	0.28	-0.06	0.36
d. street pkg. access	-0.30	-0.80	-0.94	0.14
e. 100 SQ. FT. area reduction	-0.72	0.36	0.08	1.11
• alternative set 2				
a. 25 FT. setback	-0.24	-1.01	-0.12	-1.30
b. front main entry	-0.04	0.25	0.39	0.45
c. back 2nd entry	-0.19	0.20	-0.12	-0.20
d. side windows	0.81	0.84	1.37	0.89
e. style - bungalow	-0.28	-0.90	-1.00	-1.48
- split-level	0.23	1.00	-0.41	1.00
- 2-storey	-1.41	-2.91	-0.72	0.29
f. 200 SQ. FT. area reduction	-2.72	-1.05	0.19	2.18
• alternative set 3				
a. fancy facade	0.32	1.52	2.20	2.20
b. front main entry	-0.09	0.62	0.08	0.22
c. style - bungalow	1.45	0.38	1.42	0.28
- split-level	0.17	0.48	1.93	1.33
- 2-storey	-0.36	-2.38	0.34	-1.68
d. 100 SQ. FT. area reduction	-1.18	-0.23	0.08	0.66

The values shown for specific attributes can essentially be interpreted as the change in preference resulting from a change in the value of an attribute. For example, changing front yard setback from 15 to 25 feet would reduce the preference of maximum space buyers for an alternative with that attribute by 0.18 points. Given that preferences were initially measured on a range from 1 to 8, this would be a relatively minor decrease in preferences. This same change for style buyers would however decrease preference by 1.25 points; a relatively large change in preference.

In order to compare the relative effects of changes in attributes on buyer preferences in different sets, "importances" were standardized across alternative sets using attributes common to more than one set as linkages. The value of the attribute which had the greatest effect on buyer preferences was set to 100 for each buyer type and the other attribute values were calculated in terms of their proportional relation to this. The assumption was made that the ordering of "importances" was transitive.

The relative "importances" of the external design attributes in terms of their effect on buyer preferences are shown below:

	TYPE 1	std.	TYPE 2	std.	TYPE 3	std.	TYPE 4	std.
• major effect on preference	style	100	style	100	facade	100	facade	100
	area	89	facade	93	windows	94	style	76
	shape	83			style	88		
• moderate effect on preference	windows	53	setback	36	parking	43	setback	38
	parking	37	parking	31			area	30
	2nd entry	29	windows	22			windows	25
	facade	24						
• minor effect on preference	setback	19	area	14	main-entry	16	main entry	12
	width	15	shape	11	width	15	shape	10
	main entry	7	width	7	setback	7	width	6
			main entry	7	2nd entry	5	2nd entry	5
			2nd entry	5	area	4	parking	4
					shape	3		

Establishing the relative ordering and standardized scores for the unit attributes generally presented few difficulties. Some problems, however, did arise in considering the effect of unit style for space buyers. In alternative set 1, a split-level style resulted in the largest increase in preference, whereas in set 3, a bungalow style increased preference the most. The reason for this may be that although a bungalow style is most preferred by this buyer type, within the context of a narrower lot, such a style takes up too much yard space and hence a split-level style is the best compromise. It was decided, therefore, to use the value given to style under the constraints of lot size as the effect of style on preference.

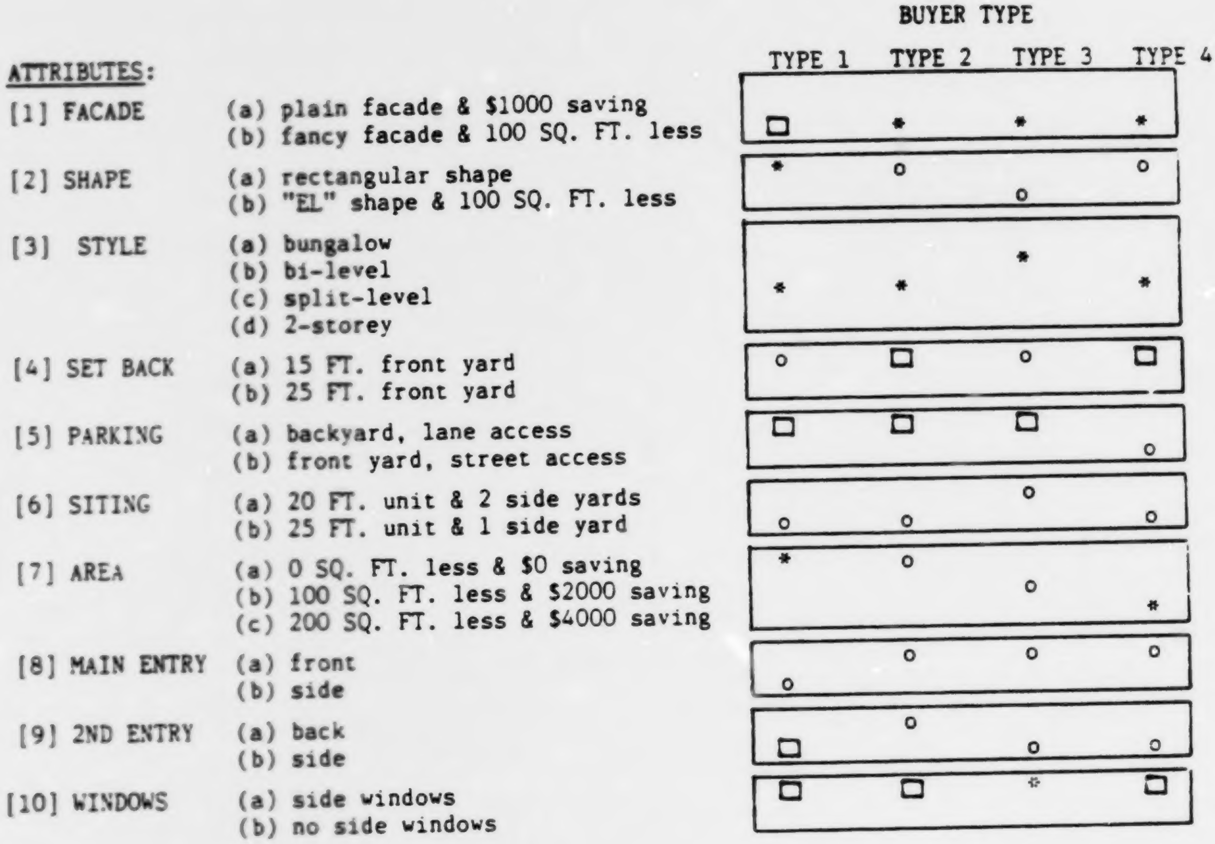
The relationships between changes in the values of unit attributes and changes in buyer preferences are summarized in Figure 4.1. It is apparent in examining the relationships that some major differences exist amongst the buyer types in terms of the unit attributes which increase buyer preferences:

- TYPE ONE/MAXIMUM SPACE BUYERS:

Given a lot width of 30 feet, preferences of TYPE ONE buyers are maximized by a unit with the following attributes:

- split-level style
- maximum square footage
- windows on all four sides
- rear lane access to on-site parking
- side entry locations
- maximum unit width
- minimum front yard setback.

Figure 4.1 Preferences in external design attributes: single-detached buyers



LEGEND:

* major effect on preference increase

☐ moderate effect on preference increase

o minor effect on preference increase

A distinguishing characteristic of TYPE ONE buyers is their unwillingless to compromise on total unit area in exchange for saving on the total unit price. Some would trade a fancy facade for less unit area, but overall, area has a much greater importance than facade treatment.

- TYPE TWO/STYLE BUYERS:

Preferences of buyers in this group tend to be greatest if the unit has the following external design attributes:

- split-level style
- fancy facade
- minimum front yard setback
- rear lane access to parking
- windows on all four sides of the unit
- maximum unit area
- maximum unit width
- front and back entry locations.

Unit style and external appearance are very important to the preferences of style buyers. Most would prefer a slightly smaller split-level unit with an attractive facade to a larger, plainer unit. For most buyers in this group, more square footage is preferred to cost savings on unit price although this is of lesser importance than other unit attributes.

- TYPE THREE/FACADE BUYERS:

Households in the TYPE THREE buyer group prefer the following unit attributes:

- fancy facade
- windows on all four sides
- bi-level style
- rear lane access to parking
- front and side entry locations
- two side yards
- smaller unit size
- an "EL" shaped unit
- minimum front yard setback.

Most important to facade buyers are external appearance, unit style and having windows on all four sides of the unit. Buyers in this group would much prefer to have a more extensive facade treatment in exchange for less square footage. Overall total unit size is of lesser importance to these buyers than space or style buyers. Reductions in square footage have relatively little effect on preferences if these reductions are compensated for by savings on unit price or a more complicated unit shape.

- TYPE FOUR/MINIMUM PRICE BUYERS:

Preferences are maximized for this buyer type by the following external design attributes:

- fancy facade
- split-level style
- minimum front yard setback
- smaller unit size
- windows on all four sides
- front and side entry locations
- maximum unit width
- street access to front yard parking

The preference that distinguishes TYPE FOUR buyers from the other buyer types is the importance of being able to save on the total unit price. Generally, cost savings are more preferred than square footage, implying that these buyers value changes in square footage at less than $20 a square foot. Buyers in this group also tended to be relatively indifferent to variances in parking arrangements but there was a slight tendency for street access parking to increase preferences.

Overall, in terms of external design attributes, it would appear that decisions on unit area, style and facade treatment have the greatest effect on buyer preferences. Reducing costs by using plainer facades is not preferred by most buyers. Using a bungalow or two storey style on a narrow lot is also not preferred. Producing a lower priced unit by offering a smaller unit would increase the preferences of only about half of the buyers of single-detached units.

4.1.3 internal design preferences: single-detached units

The following unit attributes associated with internal design requirements were rated in terms of their importance to the home purchase decision:

- living room size
- dining area size
- master bedroom size
- secondary bedroom size
- number of bedrooms
- amount of kitchen storage space
- kitchen counter layout
- a window in the kitchen work area
- a window in the eating/dining area
- half bath on the main floor
- location of the stairway
- main entry foyer
- main entry to the living room
- location of the eating area
- second entry door
- basement development potential.

The average importance rating given to each of these unit attributes was quite similar across buyer types; i.e.,

	TYPE ONE	TYPE TWO	TYPE THREE	TYPE FOUR
• very great importance	window in kit. bsmt. dev't. kit storage	bsmt. dev't. wndw. in kit. kit. storage	window in kit. kit. storage	bsmt. dev't. kit. storage
• very important	half bath no.of bdrms. mst. bdrm. living room d. a. size eating loc. kit. layout foyer wndw. in d.a.	half bath mst. bdrm. no.of bdrms. living room eating loc. d. a. size kit. layout foyer wndw. in d.a.	bsmt. dev't. mst. bdrm. half bath living room d. a. size no of bdrms. eating loc. kit. layout wndw. in d.a. foyer	window in kit. half bath living room mst. bdrms. no. of bdrms. d. a. size window in d.a.
• fairly important	2ndry bdrms. stair loc. entry type entry to l.r.	entry type 2ndry bdrms. stair loc. entry to l.r.	stair loc. 2ndry bdrms. entry type entry to l.r.	eating loc. kit. layout foyer 2ndry bdrms. stair loc. entry type
• of little importance				entry to l.r.

Interior unit attributes which received the highest importance ratings were ones related to basement development potential, natural lighting, room sizes, layouts and storage space. In comparison to external design attributes, more internal design attributes were rated as being at least very important in deciding whether or not to buy a particular single-detached unit.

Preferences for internal unit attributes were measured by again using three sets of design alternatives, each containing a subset of the attributes associated with internal design requirements. The average coefficients resulting from the least squares analysis of these alternative sets are shown below:

• alternative set 4	TYPE ONE	TYPE TWO	TYPE THREE	TYPE FOUR
a. main entry foyer	-0.25	0.22	-0.01	0.20
b. 25 FT. unit width	-0.13	0.05	0.05	0.02
c. stairs by entry	0.51	0.34	0.41	0.28
d. eating with l. r.	0.60	-0.11	0.59	0.21
e. 2nd entry patio door	-0.16	-0.05	-0.32	-0.14
f. ½ bath on main floor	1.79	1.61	1.44	1.56
g. 200 SQ.FT. area reduction	-1.24	0.33	-0.09	0.69
• alternative set 5				
a. style - 2-storey	-0.61	-0.28	0.26	-0.06
b. larger living room	0.17	0.01	0.01	0.28
c. 3 bedrooms	0.88	0.78	0.78	0.83
• alternative set 6				
a. kit. layout - "L"	-1.04	-4.01	-3.12	-1.70
- "in-line"	-1.90	-2.36	-4.49	-3.83
b. no eating in kit.	-1.01	-1.14	-0.75	-1.57
c. pantry storage	-0.05	0.05	-0.05	-0.21
d. buyer completion of storage	-1.02	-1.27	-0.82	-0.87
e. styled cupbrd. doors	-0.40	2.56	0.72	1.65

Average coefficients or preference "importances" were standardized to allow comparisons across sets and comparisons to the values associated with external design attributes. Area in set 4 was set equal to the first three alternative sets; unit style in set 5 was standardized to be comparable to the effect of style changes on preference in the previous sets; the preference for cost savings associated with buyer completion of kitchen storage space was standardized to be comparable to preferences for cost savings associated with no half bath. The relative "importances" of the internal design attributes in terms of buyer preferences are shown below for each of the four buyer types:

	TYPE 1	std.	TYPE 2	std.	TYPE 3	std.	TYPE 4	std.
• major effect on preference	½ bath	257	bdrms.	251	kit.layout	208	kit.layout	198
	kit.layout	160	kit.layout	139	½ bath	115	½ bath	134
	bdrms.	148	½ bath	133	bdrms.	63	cpbd. style	85
	d. a. loc.	86	cpbd. style	89			eat in kit.	81
	eat in kit.	84					bdrms.	69
	stair loc.	73						
• moderate effect on preference	foyer	36	eat in kit.	44	eat in kit.	38	stair loc.	24
	cpbd. style	34	stair loc.	28	stair loc.	35	l. r. size	23
	l. r. size	29			cpbd. style	33	d. a. loc.	21
	door type	23			door type	33		
• minor effect on preference	storage type	4	foyer	18	d. a. loc.	3	foyer	17
			d. a. loc.	9	storage type	2	door type	12
			door type	4	foyer	1	storage type	11
			l. r. size	4	l. r. size	1		
			storage type	2				

The effect of changes in internal design attributes on preferences is much more similar across buyer types than changes in external design attributes. A number of internal attributes also have a greater effect on preferences than important external design attributes. Kitchen counter layout, number of bedrooms and the presence of a half bath on the main floor, all have a greater impact on buyer preference than most external design attributes. The relationship between changes in internal design attributes and changes in buyer preferences is shown in Figure 4.2 and summarized below:

Figure 4.2 Preferences in internal design attributes: single-detached buyers

ATTRIBUTES:		TYPE 1	TYPE 2	TYPE 3	TYPE 4
		BUYER TYPE			
[1] FOYER	(a) main entry foyer		o		o
	(b) no main entry foyer	☐		o	
[2] 2ND DOOR	(a) hinged	☐	o	☐	o
	(b) sliding patio door				
[3] STAIRS	(a) located next to entry	*	☐	☐	☐
	(b) centrally located				
[4] LIVING RM.	(a) large l.r. & small dining area	☐	o	o	☐
	(b) small l.r. & large dining area				
[5] BEDROOMS	(a) 1 large & 2 small bdrms.	*	*	*	*
	(b) 2 large bdrms.				
[6] HALF BATH	(a) half bath on main floor	*	*	*	*
	(b) no half bath & $1500 saving				
[7] EATING AREA	(a) with living area	*		o	☐
	(b) with kitchen		o		
[8] KITCHEN LAYOUT	(a) "U" shape	*	*	*	*
	(b) "L" shape				
	(c) "I" shape				
[9] KITCHEN STORAGE	(a) pantry		o		
	(b) overhead cupboards	o		o	o
[10] CUPBOARD STYLE	(a) styled		*	☐	*
	(b) plain	☐			
[11] EAT-IN KITCHEN	(a) eating area in kitchen	*	☐	☐	*
	(b) no eating area in kitchen				

LEGEND:

- * major effect on preference increase
- ☐ moderate effect on preference increase
- o minor effect on preference increase

- **TYPE ONE/MAXIMUM SPACE BUYERS:**

Preferences of TYPE ONE buyers are greatest if a single-detached unit has the following internal attributes:

- half bath on the main floor if a full bath is on another level
- a "U" shaped kitchen layout
- a large master bedroom and two smaller bedrooms
- a large living room and a small dining area but with space in the kitchen for a table
- stairs located near an entry
- no foyer or main entrance hall
- plain kitchen cupboard doors
- overhead cupboard storage
- a hinged door for the second entry.

The preference TYPE ONE buyers showed for maximum square footage is also evident in internal design preferences; large living room, no foyer, efficient kitchen layout are preferred.

- **TYPE TWO/STYLE BUYERS:**

Internal unit attributes which result in the greatest preference for these buyer types are:

- a large master bedroom and 2 smaller bedrooms
- a "U" shaped kitchen layout
- a half bath on the main floor
- styled kitchen cupboard doors
- a large living room with the main eating area in the kitchen
- a main entry foyer with stairs located near an entry
- a hinged door for the second entry
- a pantry instead of overhead cupboards for kitchen storage.

A major difference between style buyers and buyers in other groups is their preference for the main eating or dining area to be located in the kitchen instead of being integrated with the living room. Perhaps the importance placed on the kitchen as an activity area explains the important effect that styled kitchen cupboard doors have on preference.

- TYPE THREE/FACADE BUYERS:

Households in the TYPE THREE buyer group most prefer a single-detached unit with the following internal attributes:

- a "U" shaped kitchen layout
- a half bath on the main floor
- large master bedroom and two smaller bedrooms
- an eat-in kitchen but with a small dining area integrated with the living room
- stairs located next to the entry and no main entry foyer
- styled kitchen cupboard doors
- a hinged second entry door .

Aside from kitchen counter layout, other aspects of internal layout are only of moderate or minor importance to buyers in this group. Room sizes also tend to be of lesser importance to preference which is consistent with the effect of square footage on preferences.

- TYPE FOUR/MINIMUM PRICE BUYERS:

Preferences are greatest with this buyer type if a unit has the following internal design attributes:

- "U" shaped kitchen layout
- half bath on the main floor
- styled cupboard doors
- an eating area in the kitchen and a small dining area integrated with the living room
- a large master bedroom and two smaller bedrooms
- stairs near the entry with a main entry foyer
- a hinged door for the second entry
- overhead kitchen cupboards for storage.

TYPE FOUR buyers place a higher value on saving money on the price of a new unit than square footage. Room sizes are generally of less importance to preferences of this group than other internal unit attributes. Even bedroom size and number do not have the degree of effect on preferences as for space and style buyers.

In the discussion of the effect of external design attributes on buyer preferences, it was noted that a reduction in area in return for cost savings had a relatively minimal effect on some buyers' preferences and for price buyers even increased preferences. Sources of cost savings in the internal layout and room sizes of a unit appear to be quite limited. The one attribute that involved cost savings in terms of internal design attributes was the elimination of a half bath on the main floor resulting in a $1500 cost saving. No half bath on the main floor had a major effect in reducing buyer preferences, even for price buyers, suggesting that this unit attribute is quite important in terms of perceived value and liveability.

4.1.4 construction related preferences: single-detached units

Trade-offs in unit attributes associated with the degree of construction completion involved leaving certain non-structural aspects for buyer completion in exchange for cost savings. Asking respondents to rate the importance of leaving certain things out of a unit was not thought to be too fruitful, therefore the rating of construction related aspects was presented in terms of quality; i.e.,

- quality of painted surfaces
- carpet quality
- linoleum quality
- workmanship
- insulation quality
- quality of light fixtures
- quality of closet doors
- quality of kitchen cabinets
- soundproofing quality

The average importance rating given to each of these construction-related attributes was again quite similar for each of the buyer types: i.e.,

	TYPE ONE	TYPE TWO	TYPE THREE	TYPE FOUR
• very great importance	insulation workmanship sndproofing	insulation workmanship sndproofing	insulation workmanship sndproofing	insulation workmanship sndproofing carpeting
• very important	carpeting kit. cbnts. lino paint clst. doors light fix.	carpeting kit. cbnts. lino paint	carpeting kit. cbnts. lino paint clst. doors	kit. cbnts. lino paint clst. doors
• fairly important		clst. doors light fix.	light fix.	light fix.

There was no difference in the ordering of construction related aspects in terms of their average importance to the purchase decision. The only variances were minor differences in degree of importance. For all buyer types insulation quality, workmanship and soundproofing, even in detached units were of very great importance. Of least importance, but still fairly important, was the quality of light fixtures. Apparently, most of the respondents were aware of the type of light fixture packages offered with most moderately priced, new houses.

Construction related preferences, except for buyer completion of kitchen storage space, were all measured in one set of design alternatives. Average coefficients for specific attributes are shown below for each of the buyer types:

• alternative set 7	TYPE ONE	TYPE TWO	TYPE THREE	TYPE FOUR
a. unpainted walls	-1.06	-0.98	-0.55	-0.19
b. no fixtures	-1.13	-0.69	-0.49	0.05
c. flooring - lino	-0.63	-1.49	-0.52	-0.85
- none	-1.29	-2.55	-0.73	-0.37
d. upgraded insulation	0.90	0.96	0.95	0.70

In order to allow a comparison of the relative importance construction related attributes have to buyer preferences, the average regression coefficients in alternative set 7 were standardized by making costs associated with upgraded insulation comparable to cost savings of a half bath in set 4. The relative "importances" of construction related attributes are shown below:

	TYPE 1	std.	TYPE 2	std.	TYPE 3	std.	TYPE 4	std.
• major effect on preference	flooring fixtures paint insulation storage compl.	247 216 203 172 85	flooring paint insulation fixtures	234 90 88 63	insulation	72	flooring insulation	109 90
• moderate effect on preference			storage compl.	44	flooring paint storage compl. fixtures	55 43 38 37	storage compl. paint	45 24
• minor effect on preference							fixtures	6

It is quite apparent that leaving any of the selected items for buyer completion will result in a decline in preference for most buyers. The only major difference in the reactions of the buyer types is in the degree to which preferences are decreased. This is summarized in Figure 4.3 and discussed below:

- TYPE ONE/MAXIMUM SPACE BUYERS: A completely finished house with upgraded insulation is most preferred by TYPE ONE buyers. The relative importance that construction related attributes have on buyer preference suggests that for TYPE ONE buyers these are the most important of any of the unit attributes examined.

- TYPE TWO/STYLE BUYERS: Buyers in this group are also quite unlikely to accept unfinished aspects in a new house in exchange for cost savings. Except for flooring, the degree of relative importance placed on construction completion is considerably less with this buyer type than TYPE ONE buyers.

- TYPE THREE/FACADE BUYERS: Upgraded insulation is most important to TYPE THREE buyers. Leaving floor finishing, painting, kitchen storage, light fixtures and closet doors for their completion has a moderate effect in decreasing buyer preference for a unit.

- TYPE FOUR/MINIMUM PRICE BUYERS: The preferences of this buyer type are again somewhat different. Although leaving floor finishing for buyer completion will decrease preference, most would prefer getting the subfloor only and saving $1300 than having linoleum throughout the unit and saving only $300. Most TYPE FOUR buyers tend to be indifferent to leaving out light fixtures and closet doors and saving $700 or having them completed. On the average, saving $700 in this way increases preference very slightly.

Judging from the effect that construction related attributes have on buyer preferences, there appears to be relatively little opportunity of decreasing housing costs in this area without adversely affecting preferences or liveability. Some minor cost savings are possible but only with a minority of single-detached buyers.

Figure 4.3 Preferences in construction related attributes: single-detached buyers

ATTRIBUTES:		BUYER TYPE			
		TYPE 1	TYPE 2	TYPE 3	TYPE 4
[1] KITCHEN STORAGE	(a) completed O. H. cpbds. or pantry	*	□	□	□
	(b) buyer completion & $500 saving				
[2] FIXTURES	(a) lights & closet doors installed	*	*	□	
	(b) no lights & closet doors & $700 saving				o
[3] PAINT	(a) walls painted	*	*	□	□
	(b) walls not painted & $1000 saving				
[4] FLOORING	(a) carpet & lino installed	*	*	□	*
	(b) lino thruout & $300 saving				
	(c) no carpet & lino & $1300 saving				
[5] INSULATION	(a) standard insulation				
	(b) upgraded insulation & $1000 more	*	*	*	*

LEGEND:

* major effect on preference increase

□ moderate effect on preference increase

o minor effect on preference increase

4.2 Semi-Detached Units

The evaluation of buyer preferences in design alternatives for semi-detached units was carried out on a much more limited scale than for single-detached units. Overall sample size in both Calgary and Edmonton was limited to 50 households who had purchased a new semi-detached unit priced under $85,000 within the last year. Households were selected from the same areas or subdivisions as recent single-detached buyers. However, prospective semi-detached buyers were not included in the evaluation due to the fact that no show homes were specifically selling this type of housing at the time of the study.

A self-administered questionnaire was sent to selected households living in new semi-detached units. Non-respondents to the initial mailing were sent a second questionnaire. In total, 43 responses were received: 25 from Edmonton and 18 from Calgary. Some of the general household characteristics of these respondents are presented below:

• average household size		2.8 persons
• marital status	1. married	88%
	2. single	7%
	3. other	3%
• average household income		$33,000
• average age of respondent		27 years

Households living in semi-detached units tended to be mostly young married couples; about half the buyers had one or two children in the household. Although the intention of the survey was to obtain responses from only recent buyers of semi-detached units, a number of responses were from households renting their unit [29%]. It was decided to keep renters in the sample given the small sample size and because it was felt that the experiences these households had in living in a new semi-detached unit were still valid in terms of the objectives of the study.

4.2.1 external design preferences: semi-detached units

Unit attributes associated with external design requirements for semi-detached units were quite similar to those of single-detached units. A major difference was, of course, that consideration had to be given to the fact that no separation space exists between units. Respondents were asked to rate the importance of selected unit attributes on a scale from one to seven, where seven meant that the attribute was crucial to the purchase decision. The average rating given to these attributes was as follows:

• very great importance	saving money on total unit price
• very important	windows on 3 sides of the unit type of parking access total unit size backyard size lot width
• fairly important	unit style unit style unit width structural facade features main entry location side yard space
• of little importance	front yard size second entry location decorative facade features

Most of the unit attributes associated with external design requirements were rated by semi buyers as being at least fairly important. Total unit price, parking access and overall unit and lot dimensions, especially private open areas, tended to be the most important attributes. Of least importance to the purchase decision were decorative facade features, second entry location and front yard setback.

The effect of changes in external design related attributes on buyer preferences for a semi-detached unit were measured using three sets of design alternatives. Effects of "importances" of specific unit attributes were measured by multiple regression techniques. The average regression coefficients obtained for selected semi-detached unit attributes are shown below:

• alternative set 1		• alternatives set 2		• alternative set 3	
a. 25 FT. setback	-0.21	a. 25 FT. setback	-0.31	a. decorative facade	2.12
b. 25 FT. unit width	0.59	b. front main entry	0.02	b. 2 front entries	-0.64
c. rect. unit shape	0.55	c. back 2nd entry	0.68	c. identical sides	-0.48
d. 100 SQ.FT. area reduction	0.09	d. rect. unit shape	-0.09	d. 100 SQ.FT. area reduction	-0.07
		e. style - bungalow	-0.59		
		- split	0.31		
		- 2-storey	-0.28		
		f. 200 SQ.FT. area reduction	-0.33		

In order to compare the relative effects of changes in unit attributes on buyer preferences across the three sets, the average coefficients were standardized by setting facade treatment to 100 and using area reduction and setback as links between sets 1 & 3, and sets 1 & 2, respectively; i.e.,

• major effect on preference	facade treatment	100
• moderate effect on preference	no. of front entries	30
	style mix	23
	unit style	21
	unit width	20
• minor effect on	2nd entry location	15
	unit shape	10
	setback	7
	area reduction	3
	main entry location	0

It is apparent from the analysis of semi-detached buyer preferences that facade treatment is by far the most important attribute. Most buyers prefer a unit with more elaborate facade even if unit size is reduced by 100 square feet. A plainer facade resulting in a $1000 cost saving is not preferred. Of lesser importance in terms of maximizing preferences are whether or not semi-detached units appear as one large unit or two attached units. Preference is generally increased if the two units are not of the same style; a split-level style increases preference the most but mixing a split-level with a bi-level or two storey has only a moderate effect on decreasing preference.

Overall, semi-detached units with the following external design attributes tend to increase buyer preference:

- a split-level or bi-level mixed with a two storey, both having decorative facades
- only one front entry visible from the street with the other main entry at the side and second entries at the back
- maximum unit width with rear lane access to on-site parking
- an "EL" shaped unit which provides more privacy in the backyard
- minimum front yard setback.

Total unit size is of importance to semi-detached buyers but most would accept a 100 square foot reduction in exchange for a decorative facade, an "EL" shaped unit if more backyard privacy results or for a $2000 cost saving in total unit price. Preferences of most of these buyers would however be reduced if area was reduced by 200 square feet.

4.2.2 internal design preferences: semi-detached units

The average importance ratings given to unit attributes associated with internal design requirements were as follows:

• very great importance	basement development potential amount of kitchen storage space
• very important	half bath on the main floor window in kitchen work area number of bedrooms living room size eating area size master bedroom size kitchen counter layout window in eating area main entry foyer eating area location stairway location
• fairly important	second entry door type secondary bedroom size
• of little importance	main entry to living room

The highest importance ratings in the decision of whether or not to buy a particular semi-detached unit were internal design attributes related to the potential for future basement development, kitchen storage space and room sizes. The presence of a half bath and natural lighting of the kitchen work area were also very important. Of least importance were having the main entry leading directly to the living room and secondary bedroom sizes.

Preferences for internal unit attributes were measured using the same sets of design alternatives as for single-detached units. Average regression coefficients indicating the effect of changes in unit attributes on buyer preferences for a semi-detached unit are summarized below:

• alternative set 4		• alternative set 5		• alternative set 6	
a. main entry foyer	0.21	a. 2-storey style	-0.12	a. kit. layout -"L"	-0.29
b. 25 FT. unit width	0.37	b. larger l. r.	0.16	- "in-line"	-0.97
c. stairs by entry	0.11	c. 3 bedrooms	-.70	b. no eating in kit.	-0.91
d. eating with l. r.	-0.05			c. pantry storage	0.09
e. 2nd entry patio door	0.17			d. buyer completion - storage	-0.74
f. ½ bath on mn. flr.	1.27			e. styled cupboard doors	-0.13
g. 200 SQ.FT. less area	-0.09				

Standardizing coefficients to allow comparisons across sets was done in the same way as for single-detached units. Area in set 4 was set equal to the standaridzed value given to area in the first three sets; unit style in set 5 was made comparable to the standardized effect of style change previously calculated; preference for cost savings associated with buyer completion of kitchen storage was was standardized to be comparable to preferences for cost savings associated with no half bath; i.e.,

• major effect on preferences	number of bedrooms	134
	half bath	82
• moderate effect on preference	kitchen layout	55
	eat-in kitchen	52
	living room size	31
• minor effect on preference	foyer	14
	door type	11
	stair location	7
	cupboard style	7
	storage type	5
	dining area location	3

Semi-detached buyer preferences tend to be greatest if a unit has the following internal design attributes:

- a large master bedroom and two smaller secondary bedrooms;
- a half bath on the main floor;
- a "U" shaped kitchen layout with enough space for an eating or dining area;
- a smaller living room and a larger dining area.

Variations in the other internal design attributes had relatively minimal effect on buyer preferences; i.e.,

- the presence or absence of a main entry foyer;
- a patio door or a hinged door as a second entry
- stairs located near the entry or more centrally;
- plain or styled cupboard doors;
- pantry or overhead kitchen cupboards.

4.2.3 construction related preferences: semi-detached units

Construction related attributes of semi-detached units were considered in terms of their quality aspects for purposes of assessing the importance of these attributes to the purchase decision; i.e.,

• very great importance	insulation quality soundproofing quality workmanship carpet quality
• very important	linoleum quality paint quality kitchen cabinet quality
• fairly important	closet door quality light fixture quality

Quality of construction, especially in terms of insulation, soundproofing and workmanship are of major importance to semi-detached buyers. Also important is the quality of finished surfaces such as floors, walls and cabinets. Of lesser importance are closet doors and light fixtures.

Buyer preferences in terms of degree of construction completion were, for the most part, measured using one set of design alternatives. The average regression coefficients resulting from the analysis of the effect of changes in alternative attributes on buyer preferences are as follows:

- alternative set 7

a. unpainted walls	-0.51
b. upgraded soundproofing	0.80
c. flooring - lino	-0.17
- none	-0.68
d. upgraded insulation	1.40

Coefficients were standardized by setting costs of upgraded insulation comparable to costs of a half bath in set 4. The relative importances of construction related attributes based on this transformation were:

• moderate effect on preference	insulation	56
	soundproofing	32
	flooring	27
	paint	20

Leaving non-structural aspects for buyer completion in return for cost savings on the unit price generally results in a decrease in buyer preferences. Semi-detached buyers are willing to pay more though, for upgraded insulation. Upgraded soundproofing is also an item for which most buyers would pay more. An upgrade in soundproofing was associated with leaving closet doors and light fixtures for buyer completion and a $200 cost saving. Most buyers value better soundproofing to the extent that they would prefer such a trade.

4.3 Townhouse Units

For purposes of evaluating design alternatives in row housing, 200 households in each of Calgary and Edmonton were selected from a number of recently completed townhouse condominium projects. Prospective purchasers of townhouse units could not be surveyed due to the lack of new projects in the two housing markets at the time of the study.

A self-administered questionnaire was sent to selected households and a follow-up questionnaire sent to non-respondents to the initial mailing. A total of 153 completed questionnaires were returned; 72 from Edmonton and 81 from Calgary.

4.3.1 household types: townhouse units

In a manner similar to the analysis of single-detached unit buyers, recent townhouse buyers were also grouped into homogeneous buyer types. Segmentation was again done on the basis of the "importances" or regression coefficients resulting from the analysis of unit attribute preferences.

Four townhouse buyer types or preference groups were identified: i.e.,

- TYPE I/sweat equity buyers - a major distinguishing characteristic of recent buyers in this group is their preference for realizing cost savings in unit price through trade-offs in buyer completion of non-structural, interior aspects of the unit;

- TYPE II/standard product buyers - preferences of these buyers are generally decreased by alternatives which deviate from product typically built for the Calgary and Edmonton markets;
- TYPE III/privacy buyers - these buyers are primarily distinguished from other buyer types by their preference for trade-offs which result in more privacy both inside and outside the unit;
- TYPE IV/minimum space buyers - this group of recent townhouse buyers are characterized by their preference for realizing cost savings in unit price through reductions in unit area.

Some general household characteristics of these four buyer types were as follows:

• TYPE I/SWEAT EQUITY BUYERS: [36% of respondents]	• average household size		2.7 persons
	• marital status	1. married	86%
		2. single	2%
		3. other	12%
	• average household income		$31,000
	• average age of respondent		27 years

Most households in the TYPE I buyer group for townhouses were young married couples. Slightly more than half of these households [53%] had children in the household. One in ten households was headed by a single parent.

- TYPE II/STANDARD PRODUCT BUYERS:
  [26% of respondents]

• average household size		2.9 persons
• marital status	1. married	85%
	2. single	0%
	3. other	15%
• average household income		$30,000
• average age of respondent		26 years

Households in the second buyer type are quite similar to TYPE I buyers. Household size though, is slightly larger given that more two-children households are in this group. About half [51%] of the households have two incomes, somewhat lower than the 59% of TYPE I households with two incomes.

- TYPE III/PRIVACY BUYERS:
  [20% of respondents]

• average household size		2.8 persons
• marital status	1. married	83%
	2. single	7%
	3. other	10%
• average household income		$32,000
• average age of respondent		29 years

Recent buyers in this group had the highest average income of any townhouse group; 69% of the households had two incomes. Average age was also slightly older than in other groups but household composition remained quite similar.

- TYPE IV /MINIMUM SPACE BUYERS:
  [18% of respondents]

• average household size		2.5 persons
• marital status	1. married	82%
	2. single	4%
	3. other	14%
• average household income		$24,000
• average age of respondent		28 years

In the selection of respondents for the townhouse survey no control could be exercised over the inclusion of households renting in condominium projects. As a result, as happened in the semi-detached survey, some renters were included. Overall, 5% of the respondents were presently renting. Half of these fell into the TYPE IV group. This may partially account for the slightly lower household incomes and smaller average household size in this group.

Some minor differences were also evident in the distribution of the four buyer types in the two housing markets; i.e.,

	buyer type:			
respondent type:	TYPE I	TYPE II	TYPE III	TYPE IV
• Edmonton recent buyers	35%	50%	60%	54%
• Calgary recent buyers	65%	50%	40%	46%

Sweat equity buyers were somewhat more prominent in the Calgary market; privacy buyers more likely to be from recent Edmonton townhouse buyers. The other two groups were almost equally distributed between the two housing markets.

4.3.2 external design preferences: townhouse units

The importance of specific unit attributes associated with unmet design requirements was evaluated for townhouse buyers by again using two types of questions:

- respondents were asked to rate the importance of unit attributes to the purchase decision;
- based on preference rankings for design alternatives the "importances" of specific unit attributes to buyer preferences were calculated.

Unit attributes which recent townhouse buyers were asked to rate in importance were:

- unit style
- backyard size
- frontyard size
- number of units attached in a row
- distance of parking from the unit
- type of attachment - [side-by-side/back-to-back]
- number of spaces for visitor parking
- a tot lot for the project
- unit size
- saving money on total unit price
- structural facade features
- decorative facade features
- unit width.

The average rating given to each of these external unit attributes by the four buyer types were as follows:

	TYPE I	TYPE II	TYPE III	TYPE IV
• very great importance	attach. type price area	price attach. type	price	price
• very important	pkg. loc. attach. no. backyard style width	area pkg. loc. attach. no. width visitor pkg. style backyard	area attach. type attach. no. width	attach. type pkg. loc. area attach no. style backyard
• fairly important	visitor pkg. struct.facade tot lot front yard	struct. facade tot lot	pkg. loc. style backyard visitor pkg. struct. facade tot lot dec. facade front yard	width visitor pkg. struct. facade tot lot dec. facade
• of little importance	dec. facade	dec. facade front yard		front yard

Attributes which tend to be of most importance to the purchase decision irrespective of buyer type are being able to save money on the price, the configuration of attached units and total unit area or size. TYPE II buyers seem to attach a greater importance to more attributes than other buyer types. TYPE III buyers tend to be the opposite, considering most external attributes to be only fairly important. Front yard sizes and decorative facade features such as window grills and shutters were generally judged to be the least important of the external attribute set.

The analysis of the effect of changes in external unit attributes on buyer preferences indicated some major differences amongst the buyer types. The average regression coefficients or "importances" for selected unit attributes is shown below for the different buyer types:

• alternatives set 1:	TYPE I	TYPE II	TYPE III	TYPE IV
a. 4 units attached	0.24	0.36	1.40	0.13
b. side-by-side attach.	2.56	1.82	-1.31	1.57
c. grouped parking	-0.41	-0.36	0.13	-0.59
d. rectangular shape	0.64	0.88	-1.10	-0.46
e. 5 FT. less width	-0.04	0.09	-0.44	-0.04
f. 600 SQ. FT. O.L.A.	-0.35	-0.42	0.11	0.65
g. 200 SQ. FT. less area area	-1.23	-1.29	-0.88	0.63

Only one set of alternatives was used in evaluating townhouse buyer preferences in external design attributes. However, in order to allow some comparisons to be made between this set of alternatives and the other sets, coefficients were standardized by setting the attribute with greatest effect on preference to 100 for each buyer type and calculating the other attribute coefficients as a ratio of 100. The standardized or relative "importances" of the external design attributes are shown below and summarized in Figure 4.4:

Figure 4.4 Preferences in extemal design attributes: townhouse buyers

ATTRIBUTES:		BUYER TYPE			
		TYPE I	TYPE II	TYPE III	TYPE IV
[1] ATTACHMENT TYPE	(a) side-by-side	*	*		*
	(b) back-to-back & $500 saving			*	
[2] ATTACHED NUMBER	(a) 4 units	o	o	*	o
	(b) 10 units & $2500 saving				
[3] PARKING	(a) by unit	o	o		□
	(b) grouped & $500 saving			o	
[4] O.L.A.	(a) 400 SQ. FT. yard	o	o		
	(b) 600 SQ. FT. yard & no tot lot			o	□
[5] SHAPE	(a) rectangular shape	o	□		
	(b) "EL" shape & 100 SQ. FT. less			*	□
[6] WIDTH	(a) 20 or 25 FT. wide	o		□	o
	(b) 15 or 25 FT. wide		o		
[7] AREA	(a) 0 SQ. FT. less	□	*	□	
	(b) 200 SQ. FT. less & $4000 saving				□

LEGEND:

- * major effect on preference increase
- □ moderate effect on preference increase
- o minor effect on preference increase

	TYPE I	std.	TYPE II	std.	TYPE III	std.	TYPE IV	std.
• major effect on preference	attach. type	100	attach. type	100	attach. no.	100	attach. type	100
			area	71	attach. type	94		
					shape	79		
• moderate effect on preference	area	48	shape	48	area	57	O.L.A.	41
					width		area	40
							pkg.	38
							shape	24
• minor effect on preference	shape	25	O.L.A.	23	pkg.	9	attach. no.	8
	pkg.	16	pkg.	20	O.L.A.	8	width	3
	O.L.A.	14	attach. no.	20				
	attach. no.	9	width	5				
	width	2						

Apparent in examining the relationships between changes in unit attributes and changes in buyer preferences are major differences amongst buyer types: i.e.,

- TYPE I/SWEAT EQUITY BUYERS:

Preferences tend to be greatest with this group of buyers if a townhouse project has the following external design attributes:

- blocks of four units attached side-by-side
- units with maximum square footage
- rectangular shaped units
- parking next to the unit
- smaller private open spaces but a common area with a tot lot for the project
- maximum unit width.

TYPE I buyers are generally unwilling to accept any increase in project density or a smaller unit size in order to attain savings in unit price.

- TYPE II/STANDARD PRODUCT BUYERS:

Households in the TYPE II buyer group are quite similar to TYPE I buyers in terms of external design attributes:

- blocks of four units attached side-by-side
- maximum square footage
- rectangular unit shape
- parking next to the unit
- smaller private open area
- smaller unit width.

Buyers in this group also will generally not compromise on unit size or project density for price savings.

- TYPE III/PRIVACY BUYERS:

Buyer preferences in this group differ quite substantially from preferences noted in the first two buyer groups. External unit and project attributes which increase preferences for TYPE III buyers are:

- blocks of four units attached back-to-back
- "EL" shaped units
- maximum unit area
- maximum unit width
- larger private open area
- grouped parking away from the unit.

TYPE III buyers are willing to make a number of compromises in project density and layout in order to save on total unit price; i.e. back-to-back attachment and grouped parking. Increased privacy in the backyard is also important. Most buyers in this group would accept a slightly smaller unit for an "EL" shape which results in more privacy and a larger backyard in exchange for the elimination of a tot lot. Additional reductions in total unit area are not acceptable.

- TYPE IV/MINIMUM SPACE BUYERS:

Preferences of this buyer type are generally greatest if a project has the following attributes:

- four units in a block, attached side-by-side
- larger private open area
- smaller unit size
- parking next to the unit
- "EL" shaped units
- maximum unit width.

While price savings resulting from denser unit attachments are not preferred by TYPE IV buyers, most buyers in this group would accept a smaller unit in order to save on total unit price. Increased privacy is also important to this group. A project tot lot and unit area would be traded-off by TYPE IV buyers for more backyard privacy.

It would appear that most townhouse buyers generally prefer the type of project and unit typically produced for townhouse markets in Calgary and Edmonton. A sizeable minority of buyers (38%) would, however, be amenable to achieving price savings through the use of back-to-back attachments, grouped parking or smaller unit sizes.

4.3.3 internal design preferences: townhouse units

Unit attributes associated with internal design requirements which were rated in terms of their importance to the purchase decision were the same as the one used for single and semi-detached units; i.e.,

- living room size
- dining room size
- master bedroom size
- secondary bedroom size
- number of bedrooms
- amount of kitchen storage space
- kitchen counter layout
- window in the kitchen work area
- a window in the eating/dining area
- half bath on the main floor
- location of the stairway

. . . cont'd.

- main entry foyer
- main entry to the living room
- location of the eating area
- second entry door type
- basement development potential.

The average importance rating given to these attributes by each buyer type is summarized below:

	TYPE I	TYPE II	TYPE III	TYPE IV
• very great importance	half bath	half bath kit storage	kit. storage kit. window bsmt. dev't.	half bath kit. storage
• very important	no. of bdrms. kit. storage bsmt. dev't. kit. window l. r. size mst. bdrm. d. a. size	d. a. size bsmt. dev't. no. of bdrms. l. r. size mst. bdrm. kit. window d. a. location foyer 2ndary bdrms.	half bath no. of bdrms. l. r. size mst. bdrm. foyer d. a. size eating loc. kit. layout d. a. window door type	no. of bdrms. kit. window l. r. size mst. bdrm. d. a. location kit. layout d. a. size bsmt. dev't. d. a. window
• fairly important	d. a. location 2ndary bdrms. kit. layout foyer d. a. window door type stair loc.	kit. layout d. a. window door type stair loc. entry to l. r.	stair loc. 2ndary bdrms. entry to l. r.	foyer 2ndary bdrms. stair loc. entry to l. r. door type
• of little importance	entry to l. r.			

Consistent across buyer types is the importance given to a half bath on the main floor. Also important to most buyer types are number of bedrooms, room sizes and amount of kitchen storage space. In comparison to external design attributes, the importance of internal attributes varies considerably across buyer types. This variance is also evident in buyer preferences for specific internal unit attributes.

Three sets of design alternatives were used in evaluating the effect of changes in internal attributes on buyer preferences. The average regression coefficients for selected attributes for each of the buyer types were as follows:

	TYPE I	TYPE II	TYPE III	TYPE IV
• alternative set 4:				
a. main entry foyer	0.26	0.36	0.50	-0.25
b. 25 FT. unit width	0.21	0.21	0.06	-0.12
c. stairs by entry	0.52	-0.07	0.44	0.68
d. eating with living room	0.27	0.43	0.37	-0.34
e. 2nd entry patio door	-0.08	0.07	-0.54	-0.38
f. half bath on main floor	2.75	2.30	2.19	2.08
g. 200 SQ. FT. less area	-1.11	-0.29	-0.50	0.86
• alternative set 5:				
a. 2-storey unit style	0.00	-0.05	0.08	0.22
b. larger living room	0.27	0.18	-0.08	0.13
c. 3 bedrooms	1.22	1.26	1.04	0.48
• alternatives set 6:				
a. kitchen layout - "L"	-0.49	-0.70	-2.22	-0.57
- "in-line"	-1.18	-1.53	-3.80	-0.62
b. no eating in kitchen	-0.58	0.89	-1.00	0.62
c. pantry storage	-0.07	-0.06	0.10	-0.10
d. buyer completion of storage	-1.09	-2.16	-0.48	-0.21
e. styled cupboard doors	-0.40	1.72	1.18	-0.52

Average regression coefficients were standardized to allow comparisons to be made across sets. Area in set 4 was set equal to the standardized coefficient for area reduction in set 1; cost savings associated with buyer completion of kitchen storage area in set 6 was made comparable to costs of a half bath in set 4. Standardizing coefficients in set 5 was not directly possible because of no common attributes with other alternative design sets. The assumption was made that three bedrooms were roughly equal in importance to a half bath on the main floor. Standardized coefficients for set 5 were then calculated using this assumption. Relative "importances" of internal design attributes are summarized below:

	TYPE I	std.	TYPE II	std.	TYPE III	std.	TYPE IV	std.
• major effect on preference	half bath	119	half bath	563	kit. layout	657	half bath	97
	bdrms.	119	bdrms.	563	half bath	250	bdrms.	97
			cpbd.style	150	bdrms.	250	kit. layout	94
			kit.layout	133	cpbd. style	204	eat in kit.	94
			d. a. loc.	105	eat in kit.	173	cpbd. style	79
			foyer	88				
			l. r. size	80				
			eat in kit.	77				
• moderate effect on preference	kit. layout	43			door type	62	stair loc.	32
					foyer	57	l. r. size	26
					stair loc.	50		
					d. a. loc.	42		
• minor effect on preference	l. r. size	26	stair loc.	17	l. r. size	19	door type	18
	stair loc.	22	door type	17	storage type	17	d. a. loc.	16
	eat in kit.	21	storage type	5			storage type	15
	cpbd. style	15					foyer	12
	d. a. loc.	12						
	foyer	11						
	door type	3						
	storage type	3						

The relationships between changes in internal design attributes and buyer preferences vary substantially across buyer types; i.e.,

- **TYPE I /SWEAT EQUITY BUYERS:**

Most preferred by TYPE I buyers is a townhouse unit with the following internal design characteristics:

- half bath on the main floor
- a large master bedroom and two smaller secondary bedrooms
- a "U" shaped kitchen layout
- dining area integrated with the living room but with more area given to the living room
- enough room in the kitchen for an eating area
- a main entry foyer with stairs near the entry
- plain cupboard doors in the kitchen
- overhead cupboards for storage
- a hinged door for the second entry.

Aside from the half bath, number of bedrooms and kitchen layout, internal design attributes had only a relatively minor effect on buyer preference.

- **TYPE II /STANDARD PRODUCT BUYERS:**

Internal design attributes which result in the highest preference for TYPE II buyers are:

- half bath on the main floor
- a large bedroom and 2 smaller bedrooms
- styled kitchen cupboard doors
- a "U" shaped kitchen layout
- dining area integrated into a large living room
- a main entry foyer
- an eat-in kitchen
- stairs centrally located
- a sliding patio door as a second entry
- overhead kitchen cupboards for storage.

In comparison to the effect of a half bath on buyer preferences, other internal design attributes have much less of an effect. Nevertheless, most of the selected internal attributes, except for stair location, second entry type and type of kitchen storage do have a relatively major effect on TYPE II buyer preferences.

- TYPE III/PRIVACY BUYERS:

Preferences are greatest with this buyer type if a townhouse unit has the following internal design attributes:

- a "U" shaped kitchen
- half bath on the main floor
- a large master bedroom and 2 smaller bedrooms
- styled kitchen cupboard doors
- an eat-in kitchen
- a hinged second entry door
- a main entry foyer with stairs near the entry
- a larger dining area integrated with the living room
- pantry storage in the kitchen.

Kitchen layout, size and appearance seem to take presidence over other internal attributes for most TYPE III buyers.

- TYPE IV/MINIMUM SPACE BUYERS:

Townhouse buyers in TYPE IV generally showed the highest preference for the following internal design attributes:

- half bath on the main floor
- one large and two smaller bedrooms
- a "U" shaped kitchen layout
- plain cupboard doors
- no main entry foyer but stairs near the entry
- a larger living room and smaller dining area
- a larger living room and smaller dining area
- a hinged second entry door
- overhead kitchen cupboards for storage.

Figure 4.5 Preferences in internal design attributes: townhouse buyers

ATTRIBUTES:		BUYER TYPE			
		TYPE I	TYPE II	TYPE III	TYPE IV
[1] FOYER	(a) main entry foyer	o	*	□	
	(b) no entry foyer				o
[2] 2ND DOOR	(a) hinged	o		□	o
	(b) sliding patio door		o		
[3] STAIRS	(a) located next to entry	o		□	□
	(b) centrally located		o		
[4] LIVING RM.	(a) large l.r. & small d.a.	o	*		□
	(b) small l.r. & large d.a.			o	
[5] BEDROOMS	(a) 1 large & 2 small	*	*	*	*
	(b) 2 large				
[6] HALF BATH	(a) half bath on main floor	*	*	*	*
	(b) no half bath & $1500 saving				
[7] EATING AREA	(a) with living area	o	*	□	
	(b) with kitchen				o
[8] KITCHEN LAYOUT	(a) "U" shape	□	*	*	*
	(b) "L" shape				
	(c) "I" shape				
[9] KITCHEN STORAGE	(a) pantry			o	
	(b) overhead cupboards	o	o		o
[10] CUPBOARD STYLE	(a) styled		*	*	
	(b) plain	o			*
[11] EAT IN KITCHEN	(a) eating area in kitchen	o	*	*	
	(b) no eating area in kitchen				*

LEGEND:

* major effect on preference increase
□ moderate effect on preference increase
o minor effect on preference increase

TYPE IV buyer preferences for eating or dining area location did not come out very clearly from the analysis. A combined eating-kitchen area tends to be preferred, yet an eating area in the kitchen decreases preference. Given that these two unit attributes were measured in two sets of alternatives, it may be safest to assume that TYPE IV buyers are, overall, indifferent to eating area location.

The effect of changes in internal design attributes on townhouse buyer preferences is summarized in Figure 4.5. In comparison to external design attributes, these appear to be generally more important to buyer preferences. There would also seem to be little in the way of cost savings to be realized in terms of internal design attributes without adversely affecting buyer preferences.

4.3.4 construction related preferences: townhouse units

The following quality aspects of construction related attributes were rated in terms of their importance to a buyer's decision on whether or not to purchase a townhouse unit:

- quality of painted surfaces
- carpet quality
- linoleum quality
- workmanship
- insulation quality
- quality of light fixtures
- quality of closet doors
- quality of kitchen cabinets
- soundproofing quality.

The average importance rating given to each of these construction-related attributes was quite similar for each of the four buyer types; i.e.,

	TYPE I	TYPE II	TYPE III	TYPE IV
• very great importance	soundproofing insulation workmanship	soundproofing insulation workmanship carpeting lino	soundproofing insulation workmanship	soundproofing insulation workmanship paint carpet lino
• very important	carpeting lino kit. cabinets paint closet doors	paint kit. cabinets closet doors light fixtures	carpeting lino kit. cabinets paint closet doors	kit. cabinets closet doors light fixtures
• fairly important	light fixtures		light fixtures	

For most townhouse buyers, soundproofing, insulation and workmanship are the most important construction-related aspects. In this respect, they vary little from buyers of other unit types. Of least importance, although still fairly important are the quality of light fixtures and closet doors.

Construction-related preferences were, for the most part, measured using one set of design alternatives. Attributes were again expressed in terms of leaving certain non-structural items for buyer completion. The average coefficients are shown below for each of the buyer types:

• alternative set 7:	TYPE I	TYPE II	TYPE III	TYPE IV
a. unpainted walls	0.01	-1.41	0.56	-0.89
b. upgraded soundproofing	1.66	-0.49	1.31	-0.83
c. flooring - lino	-1.39	-0.82	0.36	-1.39
- none	0.69	-1.98	2.63	-0.78
d. upgraded insulation	1.52	0.47	2.08	0.24

In order to compare the relative "importance" of construction related attributes to buyer preferences, average coefficients were standardized by setting costs associated with upgraded insulation comparable to costs of a half bath in set 4. Resulting relative "importances" are shown below:

	TYPE I	std.	TYPE II	std.	TYPE III	std.	TYPE IV	std.
• major effect on preference	sndprfing	87	flooring	1584	flooring	210	paint	237
	insulation	80	paint	1128	insulation	166	sndprfing	221
	flooring	73	insulation	392	sndprfing	105	flooring	208
			sndprfing	376	strge.compl.	83	insulation	64
			strge.compl.	188				
• moderate effect on preference	strge.compl	40			paint	45	strge.compl.	32
• minor effect on preference	paint	1						

A number of very substantial differences are apparent amongst townhouse buyer types with respect to leaving non-structural items for buyer completion in exchange for cost savings. These are summarized in Figure 4.6 and discussed below:

- TYPE I/SWEAT EQUITY BUYERS:

Most buyers in this group will make some trade-offs in order to realize cost savings or improved quality in other unit attributes; i.e.,

- buyers generally tend to be indifferent to whether or not interior walls are left unpainted for a $1000 cost saving;
- saving $1300 by leaving floors at the substage is preferred by TYPE I buyers to having floors finished the way they now are;

- most prefer to have upgraded soundproofing even if this means leaving out light fixtures and closet doors and only a $200 cost saving.

Buyers in this group, however, prefer completed kitchen storage. Upgraded insulation is an item for which most would pay more.

- TYPE II/STANDARD PRODUCT BUYERS:

TYPE II buyers are the least likely to accept any reduction in a finished unit. Even upgraded soundproofing will decrease preference if this means no light fixtures or closet doors. Preferences are highest if all aspects of the unit are completed and upgraded insulation is provided.

- TYPE III/PRIVACY BUYERS:

Cost savings in project attributes generally increased TYPE III buyer preferences. The same is the case with cost savings attainable through buyer completion of non-structural unit attributes. The preference of this group of buyers is for:

- saving $1300 by completing the finishing of floors
- upgrading soundproofing by completing the light fixtures and closet doors
- saving $1000 by painting interior walls.

Although TYPE III buyers appear to be willing to undertake the completion of a number of items, their preference is not for completing storage space in the kitchen.

Upgraded insulation has a major effect on increasing preference, even if this means extra costs.

Figure 4.6 Preferences in construction related attributes: townhouse buyers

ATTRIBUTES:		TYPE I	TYPE II	TYPE III	TYPE IV
[1] KITCHEN STORAGE	(a) completed O.H. cpbds./pantry	□	*	*	
	(b) buyer completion & $500 saving				□
[2] FIXTURES/ SNDPROOFING	(a) lights & closet doors & std. soundproofing	*	*		*
	(b) no lights/doors & upgraded soundproofing & $200 saving	*		*	
[3] PAINT	(a) walls painted		*		*
	(b) no paint & $1000 saving	o		□	
[4] FLOORING	(a) carpet & lino		*		*
	(b) lino thruout & $300 saving				
	(c) flrs. unfinished & $1300 saving	□		*	
[5] INSULATION	(a) std. insulation (b) upgraded insulation & $1000 more	*	*	*	*

LEGEND:

- * major effect on preference increase
- □ moderate effect on preference increase
- o minor effect on preference increase

- **TYPE IV/MINIMUM SPACE BUYERS:**

Preferences of TYPE IV buyers are similar to those of TYPE II buyers. Most prefer a completed unit to cost savings. Upgraded soundproofing but no light fixtures or closet doors tends to decrease preferences. Upgraded insulation however, seems to be worth an extra $1000.

Even though most buyers in this group prefer a completed unit, the preference for buyer completion of kitchen storage area was positive or at least neutral. Apparently TYPE IV buyers place less importance on kitchen-related aspects than do other buyer types.

Perhaps somewhat surprising, but it would appear that some opportunity exists amongst townhouse buyers to decrease housing costs by leaving items to buyer completion without reducing buyer preferences. This is quite in contrast with buyers of other types of housing.

4.4 Evaluation of Cost Savings

A number of specific cost savings were associated with various sets of design alternatives evaluated by new home buyers. These cost savings were limited to the following areas:

- facade treatments for single and semi-detached units;
- reductions in square footage for all unit types;
- buyer completion of non-structural items;
- unit attachment and parking arrangements for townhouse or row units.

The estimates used for savings in direct construction costs were obtained through the interviews with builders in the initial stages of the study. In order to improve upon these estimates and establish some realistic ranges for direct construction costs, 32 builders of of moderately priced new homes in Calgary and Edmonton were surveyed using a self-administered questionnaire. A total of 11 builders responded to the survey. The survey results in terms of cost estimates for the different unit types are discussed below.

4.4.1 cost savings: single-detached units

The evaluation of single-detached buyer preferences indicated that cost savings could be attained in two areas without adversely affecting buyer preferences significantly:

- area reduction - two single-detached buyer types would accept a smaller unit in return for a price reduction: TYPE 3 buyers tend to value reduced square footage at $20 a square foot; TYPE 4 buyers value the savings more than area reduction. On the average, the results of the builder survey indicate a $25 direct construction cost saving for each reduction in square foot of area.

- buyer completion - only TYPE 4 buyers, representing about 25% of single-detached buyers are relatively indifferent to saving on total unit price by completing light fixtures and closet doors by themselves. Savings in this area are not substantial. Builder estimates of savings in direct construction costs on these items range from $300 to $1,200 with the average estimate being $677.

The estimates used in the development of design alternatives for other items left to buyer completion are comparable to average estimates obtained from builders; i.e.,

• painting of interior walls	$897
• lino on all floors	$360
• no floor finishing	$1,842
• no overhead kitchen cupboards	$506.

However, all single-detached buyer types value the completion of these items more than the cost savings. Unit prices can not be reduced by leaving these for buyer completion.

The two other unit attributes considered in terms of reducing total unit price were:

- a plain facade instead of a fancy facade;
- elimination of the half bath on the main floor.

Cost savings in these two areas tend to reduce buyer preferences significantly. Builder estimates for differences between a plain and fancy facade average $1,527. Most buyers would prefer a fancier facade even if this meant a 100 square foot reduction in unit area. Direct construction costs of a half bath on the mail floor are estimated to average $753 by builders. Single-detached buyers would not give up a half bath for $1,500.

It is apparent from the evaluation of buyer preferences that more elaborate facade treatments and half baths have a high perceived value for most single-detached buyers. The perceived value of these unit attributes is generally greater than the direct construction costs.

4.4.2 cost savings: semi-detached units

Preferences of semi-detached buyers are generally such that cost savings resulting from simpler facade treatments, reductions in unit area or leaving non-structural items for buyer completion will result in a decrease in preferences. The only exception to this is the trade-off most semi-detached buyers are willing to make for upgraded soundproofing; i.e. leaving light fixtures and closet doors for buyer completion.

Limited reductions in unit area may be possible in semi-detached units given that this only has a minor effect on decreasing preferences. It is questionable though, if these reductions can be such that more than minor cost savings are realized.

4.4.3 cost savings: townhouse units

Cost savings are attainable in a number of unit and project attributes without adversely affecting townhouse buyer preferences:

- back-to-back attachment - about 20% of townhouse buyers [TYPE III] prefer cost savings achieved by a back-to-back attachment to a side-by-side attachment. Very few builders surveyed were building townhouse units at the time of the study. Only three estimates of direct construction cost savings were obtained for this variance in unit attachment. The average estimate obtained was $796 per unit, somewhat more than the $500 saving used in the design alternative.

- grouped parking - TYPE III buyer preference also increased with the $500 cost saving resulting from grouping parking away from the unit. Average estimate of savings in direct construction costs made by builders was $523 per unit.

Attaching units 10 in a row instead of 4 results in major cost savings [average $2,328], but also results in a decline in buyer preferences. For most buyer types, except for TYPE III buyers, the decline in preference is minor.

Other cost savings acceptable to some townhouse buyers were:

- area reduction - TYPE IV buyers [18%] of townhouse buyers preferred cost savings to a larger unit;
- buyer completion - TYPE I and TYPE III buyers preferred cost savings attainable by leaving painting and floor finishing to buyer completion. Buyers in these two groups would also prefer upgraded soundproofing in exchange for light fixtures and closet doors and a $200 cost saving. TYPE IV buyers were the only group who would prefer to save $500 by completing area themselves.

As was the case with buyers of other unit types, a half bath has a high perceived value for townhouse buyers. Few would go without a half bath in order to reduce total unit price.

It would appear that some substantial cost savings are attainable in townhouse units; i.e.

- $2,700 per unit for TYPE I buyers by leaving painting and floor finishing to buyer completion;
- $3,700 per unit for TYPE III buyers by attaching units back-to-back, grouping parking and leaving painting and floor finishing to buyer completion;
- $4,500 per unit for TYPE IV buyers by reducing unit size by 200 square feet and leaving completion of kitchen storage space to the buyer.

These three buyer groups represent about 74% of all the townhouse buyers surveyed.

4.5 Evaluation of Regulatory Constraints

Design alternatives developed for the evaluation of buyer preferences were all within the constraint of current building industry practices. As a consequence, most design alternatives and the unit attributes associated with these alternatives did not exceed regulatory constraints. Exceptions to this occurred in only a limited number of areas and for the most part, regulatory constraints affected the inclusion of attributes preferred by buyers in an indirect manner.

Most single-detached buyers place a high value on having windows located on all sides of the unit. Incorporating this preferred unit attribute into the design of single-detached units does not present problems unless minimum separation space requirements between units are not met. Present land-use bylaw requirements in Calgary and Edmonton and building code requirements restrict the location of windows on unit sides where separation spaces are less than a certain distance. This presents somewhat of a problem in meeting the preference for maximum unit width shown by most single-detached buyer types. Given that minimum separation space requirements and the restriction on window locations are based on safety and fire code considerations, the possibility of allowing windows on the side of a unit not meeting minimum separation space requirements appears quite limited. The only suitable compromise would seem to be to reduce unit width and have windows on all sides since window location is much more important to buyer preferences than unit width.

Single and semi-detached buyers also tend to place a high value on a decorative or fancy facade appearance. There are no regulatory constraints which put a direct limitation on facade treatment but present lending regulations for new units financed by Alberta Home Mortgage are such that certain facade elements are considered as "frills" and therefore restricted in number. These restrictions placed on facade appearance are currently under review by AHMC and fewer restrictive requirements may be forthcoming.

Front yard parking was evaluated as an alternative to rear lane access to backyard parking. Land-use bylaws do not allow this type of parking arrangement unless vehicular access is also provided to the backyard. Since only TYPE 4 buyers showed a slight preference for front yard parking, slight to the extent that they could be considered indifferent to parking location, this restriction cannot be considered as seriously limiting the maximization of buyer preferences. Rear lane access appears to be the most preferred option given a narrow 30 foot lot. Providing front yard parking with a side drive would require a zero lot line siting which in turn would restrict window location. The decrease in buyer preferences resulting from this option is much greater than any potential gain resulting from side-drive parking.

The other major area of design attributes which is indirectly affected by regulatory constraints is the set dealing with degree of construction completion. Preferences of most single and semi-detached buyers are generally decreased by leaving any non-structural items for buyer completion in exchange for cost savings or upgrades elsewhere. However, a sizeable minority of townhouse buyers did prefer such trade-offs. Leaving non-structural aspects for buyer completion is not restricted by regulations. Some government programs such as the shell housing program, are built around this concept. Problems do arise in meeting lending requirements and inspections for mortgage advances if cost trade-offs for buyer completion are used in lending programs not specifically designed to deal with such trade-offs. A major problem becomes the responsibility for finishing the unit and assessing unit value for mortgage purposes. Difficulties in this area are more related to administrative problems than anything else and could probably be overcome if enough demand is evident for cost saving trade-offs.

5.0 DESIGN TRADE-OFFS IN SINGLE-DETACHED UNITS

The analysis and evaluation of buyer preferences, in terms of the design alternatives presented to them, resulted in the identification of four buyer types for single-detached units. These buyer types were defined on the basis of differences in preferences for selected unit attributes; i.e.,

- TYPE 1/maximum space buyers [20%[- new home buyers falling into this group were distinguished from other buyers by the high preference or value they place on total unit area or size;
- TYPE 2/style buyers [23%] - unit style is an important attribute to most buyers of single-detached houses especially so for buyers in this group;
- TYPE 3/facade buyers [32%] - a decorative or fancy facade treatment has a very high perceived value amongst TYPE 3 buyers;
- TYPE 4/minimum price buyers [25%] - buyers in this group are, for the most part, willing to make considerable compromises in unit area in order to realize cost savings on the total unit price.

Differences amongst these four buyer types go beyond, of course, the unit attributes used to label or characterize them. These differences are more fully examined in this section. Of particular interest will be:

- identifying trade-offs in unit attributes which result in increased preference without necessarily increasing direct construction costs;
- identifying trade-offs resulting in direct construction cost savings without affecting overall buyer preferences;
- implications of these trade-offs for the design of moderately priced single-detached units.

5.1 TYPE 1/Maximum Space Buyers

Approximately one in five of prospective and recent purchasers surveyed in this study were classified as maximum space buyers. Preferences of this buyer type, as they were for the other buyer types, were analysed in terms of variances in unit attributes associated with three broad groupings of design requirements in moderately priced, single-detached units; i.e.,

- external design requirements;
- internal design requirements;
- construction-related requirements.

A summary of the analysis of the relationships amongst unit attributes associated with these three requirement sets, in terms of their effect on TYPE 1 buyer preferences, is presented in the form of a preference trade-off matrix in Figure 5.1. Along the side or vertical axis of this matrix are unit attributes which tend to result in a decline in TYPE 1 buyer preferences. The horizontal axis lists unit attributes which result in an increase in buyer preferences. The matrix, itself, can be read in a number of ways; i.e.,

- unit attributes along the horizontal axis or top of the matrix all result in increased buyer preference. If it were possible to design a single-detached unit with these attributes, such a unit would be preferred over a unit not having one or more of these attributes;
- the more points of intersection or circles down a column in the matrix, the more important an attribute is in terms of buyer preference and the more difficult it is to compensate for the absence of that attribute. From Figure 5.1,it can be seen that three bedrooms, a half bath, unit area and most construction related attributes are quite important to maximum space buyers;
- conversely, the fewer points down a column or the more points of intersection along a row, the less important an attribute is to buyer preference. The decline in preference resulting from a front

TRADE-OFFS INCREASING PREFERENCE:

	EXTERNAL DESIGN ATTRIBUTES													INTERNAL DESIGN ATTRIBUTES													CONSTRUCTION RELATED ATTRIBUTES					
TRADE-OFFS DECREASING PREFERENCE:	1. FANCY FACADE	2. RECTANGULAR UNIT	3. SPLIT-LEVEL STYLE	4. BI-LEVEL STYLE	5. BUNGALOW STYLE	6. 15 FT. SET-BACK	7. BACK YARD PKG.	8. 25 FT. UNIT WIDTH	9. 100 SQ. FT. MORE AREA	10. 200 SQ. FT. MORE AREA	11. MAIN ENTRY SIDE	12. 2ND ENTRY SIDE	13. SIDE WINDOWS	14. NO FOYER	15. HINGED DOOR	16. STAIRS BY ENTRY	17. LARGE LIVING RM.	18. 3 BEDROOMS	19. ½ BATH	20. DINING/LIVING AREA	21. "U" SHAPED KITCHEN	22. "L" SHAPED KITCHEN	23. OVERHEAD CPBDS.	24. PLAIN CPBD. DOORS	25. EAT-IN KITCHEN	26. KIT. STORAGE COMPLETE	27. LIGHTS/DOORS INSTALLED	28. WALLS PAINTED	29. CARPET FLOORING	30. LINO FLOORING ONLY	31. UPGRADED INSULATION
1. PLAIN FACADE		○	○	○	○		○		○	○		○	○	○		○	○	○	○	○	○	○		○	○	○	○	○	○	○	○
2. "EL" SHAPED UNIT			○	○					○	○								○	○		○						○	○	○	○	○
3. BI-LEVEL STYLE	○	○				○	○		○	○		○	○	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○	○
4. BUNGALOW STYLE		○							○	○			○			○		○	○	○	○	○			○	○	○	○	○	○	○
5. 2-STOREY STYLE										○								○	○		○						○	○	○		○
6. 25 FT. SET-BACK	○	○	○	○	○		○		○	○		○	○	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○	○
7. FRONT YARD PKG.		○	○	○	○				○	○			○			○		○	○	○	○	○				○	○	○	○	○	○
8. 20 FT. UNIT WIDTH	○	○	○	○	○	○	○		○	○		○	○	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○	○
9. 100 SQ. FT. LESS AREA			○															○	○		○						○	○	○		○
10. 200 SQ. FT. LESS AREA																			○								○	○	○		○
11. MAIN ENTRY FRONT	○	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○	○
12. 2ND ENTRY BACK		○	○	○	○		○		○	○			○	○		○		○	○	○	○	○		○	○	○	○	○	○	○	○
13. NO SIDE WINDOWS		○	○	○	○				○	○						○		○	○	○	○	○			○	○	○	○	○	○	○
14. FOYER		○	○	○	○				○	○						○		○	○	○	○	○			○	○	○	○	○	○	○
15. PATIO DOOR		○	○	○	○				○	○		○	○	○		○	○	○	○	○	○	○		○	○	○	○	○	○	○	○
16. STAIRS CENTRAL		○	○	○	○				○	○								○	○	○	○	○			○	○	○	○	○	○	○
17. SMALL LIVING RM.		○	○	○	○				○	○			○	○		○		○	○	○	○	○		○	○	○	○	○	○	○	○
18. 2 BEDROOMS										○									○		○						○	○	○		○
19. NO ½ BATH																															
20. DINING/KIT. AREA			○	○					○	○								○	○		○						○	○	○	○	○
21. "L" SHAPED KIT.			○	○					○	○								○	○								○	○	○	○	○
22. "I" SHAPED KIT.										○									○								○	○	○		○
23. PANTRY	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○	○
24. STYLED CPBD. DOORS		○	○	○	○				○	○			○	○		○		○	○	○	○	○			○	○	○	○	○	○	○
25. NO EAT-IN KITCHEN			○	○					○	○								○	○		○						○	○	○	○	○
26. KIT. STORAGE UNCOMP.			○	○					○	○								○	○		○						○	○	○	○	○
27. NO LIGHTS/DOORS																			○										○		
28. NO PAINT																			○												
29. LINO FLOORING ONLY																		○	○								○	○			○
30. NO FLOORING																			○												
31. STD. INSULATION																			○								○	○	○		

FIGURE 5.1 PREFERENCE TRADE-OFF MATRIX: TYPE 1/MAXIMUM SPACE BUYERS

LEGEND: ○ INCREASED PREFERENCE FOR ATTRIBUTE ALONG THE TOP OFFSETS DECREASED PREFERENCE FOR ATTRIBUTE DOWN THE SIDE

NOTE: 1. STYLE:
- DECREASING PREFERENCE FROM SPLIT-LEVEL
- INCREASING PREFERENCE FROM TWO-STOREY

2. KITCHEN LAYOUT:
- DECREASING PREFERENCE FROM "U" SHAPE
- INCREASING PREFERENCE FROM "I" SHAPE

3. FLOORING:
- DECREASING PREFERENCE FROM COMPLETE FLOORING
- INCREASING PREFERENCE FROM NO FLOORING

entry location or a pantry is quite minimal and can be compensated for by preferred changes in other attributes.

- the points of intersection themselves indicate which attributes along the top of the matrix will compensate for a decline in preference resulting from the inclusion of an attribute listed along the side of the matrix. Compensating trade-offs are shown only on a one-to-one basis. For example, the decline in preference with a plain facade can be compensated by the increase in preference resulting from a rectangular unit or a split-level style instead of a two-storey style or by any of the other attributes for which a circle is shown in the first row. The combined effect of trading-off more than one attribute at a time cannot be ascertained from the matrix. The initial preference weights used to construct the matrix must be used for such calculations;
- the numbers associated with the individuel attributes are for purposes of identification only and do not refer to any attribute rankings or values.

It should be noted that although the matrix includes external, internal and construction related attributes, the interpretation of design trade-offs tends to be on firmer ground when limited to unit attributes within each of the three groupings. Given the manner in which preferences for design attributes were estimated, drawing implications from trade-offs between the major groupings requires more limiting assumptions to be made.

In looking at the set of external design attributes in Figure 5.1, it can be seen that an extra 100 square feet in area is more important than a fancy facade. The implication of this being that most maximum space buyers would prefer a larger house with a plain facade to a smaller house with a fancy facade. Establishing a trade-off between attributes in different major groupings requires the assumption that the attributes used in the analysis to link different sets retain their relative importance or preference weighting in different sets.

If this assumption is made then it would appear that the increased preference resulting from upgraded insulation is greater than the decline in preference associated with a plain facade. Maximum space buyers should therefore prefer a unit with a plain facade and upgraded insulation to one with a fancy facade and standard insulation.

Irrespective of whether trade-offs are considered within major attribute groupings or between groupings it must be remembered that preferences for trade-offs are relative to other product available in a housing market. A fancy facade, for example, is preferred to a plain facade and given two otherwise identical units, buyers will prefer the fancy facade unit. In this example, a plain facade would only be preferred if it had compensating attributes not exhibited by the unit with the fancy facade.

5.1.1 trade-offs in external design attributes: maximum space buyers

Although almost all unit attributes included in the set of external design attributes were rated as being at least fairly important to the home purchase decision by maximum space buyers, three attributes tend to be the most important both in terms of buyer preferences and design constraints placed on other attributes: i.e.,

- unit style - if lot dimensions were not a constraint, most buyers in this group prefer a bungalow style; i.e.,

● preferred unit style	- bungalow	43% of buyers
	- split-level	25% of buyers
	- bi-level	17% of buyers
	- two-storey	15% of buyers

However, presented with the situation of a single-detached unit on a 30 foot wide lot, buyer preferences are greatest with a split-level style. A bi-level style on a narrow lot is also relatively acceptable and will decrease buyer preferences only slightly. Two-storey units and even bungalows on a 30 foot wide lot are less acceptable to maximum space buyers. More unit area and in the case of a two-storey, 200 square feet more, would be required to compensate for the decline in preference resulting from the use of these two unit styles.

- unit area - few, if any, buyers in this group are willing to make trade-offs which result in a smaller sized unit. Cost savings in total unit price of $20 per square foot are insufficient to compensate maximum space buyers for reduced unit size. Only in two areas are some size reductions acceptable.

  The decline in preference resulting from a two-storey style is such that buyers in this group would prefer a split-level, even if the split-level had 100 square feet less area than the two-storey. A decorative or fancy facade treatment will also result in a trade-off for 100 square feet. However, the increase in preference resulting from a decorative facade is not great which suggests that this trade-off may not appeal to many maximum space buyers. A reduction of 200 square feet in area for a $4000 cost saving causes a decline in buyer preferences that cannot be compensated in terms of other external design attributes.

- window location - windows on all four sides of the unit instead of just front and back are much preferred by buyers in this group. In order that windows can be located on the side, building code requirements and land-use bylaws require increased separation spaces between adjacent units. Such requirements result in a narrower unit on a 30 foot lot which in turn tends to reduce buyer preferences. The reduction in preference is however, relatively minor and more than offset by having windows in those locations.

Other unit attributes included in the set of external design attributes tend to be of less importance to maximum space buyer preferences and to some extent constrained by the high preference associated with unit style, area and window location: i.e.,

- unit shape - two alternatives considered for unit shape were rectangular and a more complicated "EL" shape which was associated with a 100 square foot reduction in area to compensate for higher construction costs. Although an "EL" shape could result in variations in unit appearance and more flexibility in parking arrangements, preference of maximum space buyers were greatest with the larger, rectangular shaped unit.
- parking location - lane access to backyard parking was generally preferred to front yard parking by buyers in this group. Preference for side drive parking was not directly evaluated but was included as an alternative . Given a wider lot which did not place restrictions on window locations or unit width, buyers would likely prefer a side drive to rear lane access. However, given a 30 foot wide lot, lane access appears to be the best compromise solution for TYPE 1 buyers.
- facade treatment - structural facade features such as a chimney chase, boxed windows, variations in roof elevations were rated as being fairly important to the purchase decision of TYPE 1 buyers. Decorative features such as window grills and shutters were of less importance. Facade appearance tends to have less of an effect on maximum space buyer preferences than other buyer types. A fancy or decorative facade is

generally preferred by these buyers even with a reduction of 100 square feet in the unit with a fancy facade. A reduction in area greater than this would however, result in a higher preference for a plain facade.

- front yard setback - for a given unit style, less front yard setback will result in more backyard area. This trade-off has only a minor effect on maximum space buyer preferences. A 15 foot setback is preferred by these buyers to a 25 foot setback but is of less importance to buyer preferences than most other unit attributes.
- entry locations - TYPE 1 buyers tend to prefer both entries to be located on the sides of the unit. The effect on preference is also relatively minor and most buyers are indifferent to whether the main entry is located on the side or front of the unit.
- unit width - preferences are slightly greater for a 25 foot unit than a 20 foot wide unit. However, given the importance of side windows, a 20 foot wide unit with two side yards and windows on all four sides will have a more positive effect on buyer preference than a wider unit on a narrow lot.

Variations in setback, facade treatment and main entry location have less of an effect on TYPE 1 buyer preferences and allow a number of alternatives to be developed which meet TYPE 1 buyer requirements. These are summarized in Figure 5.2.

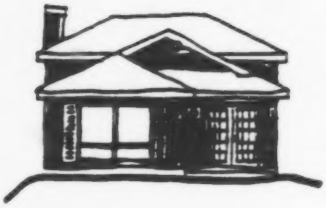
5.1.2 trade-offs in internal design attributes: maximum space buyers

Design attributes related to internal space allocation, room size and layouts tend to be quite important to TYPE 1 buyers both in terms of making the decision on whether or not to buy a particular home and in terms of buyer preference. In particular, three of the internal unit attributes examined were most important to buyer preferences: i.e.,

FIGURE 5.2 PREFERRED EXTERNAL DESIGN ATTRIBUTES: TYPE 1/MAXIMUM SPACE BUYERS [see text for details]

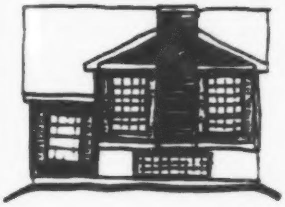
- UNIT STYLE

(A) SPLIT-LEVEL



- MOST PREFERRED

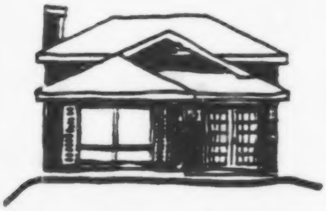
(B) BI-LEVEL



- PREFERRED IF (A) HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- 100 SQ. FT. LESS AREA
- FRONT YARD PARKING
- PLAIN FACADE
- 25 FT. SETBACK
- NO SIDE WINDOWS

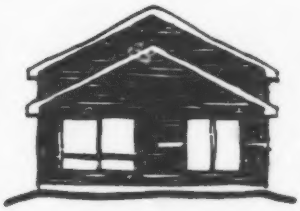
- FACADE TREATMENT

(A) FANCY FACADE



- MOST PREFERRED

(B) PLAIN FACADE



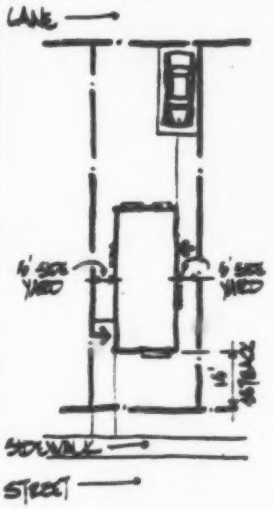
- PREFERRED IF (A) HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- 200 SQ. FT. LESS AREA
- FRONT YARD PARKING
- NO SIDE WINDOWS

LEGEND.

FIGURE 5.2 cont'd. PREFERRED EXTERNAL DESIGN ATTRIBUTES: TYPE 1/MAXIMUM SPACE BUYERS

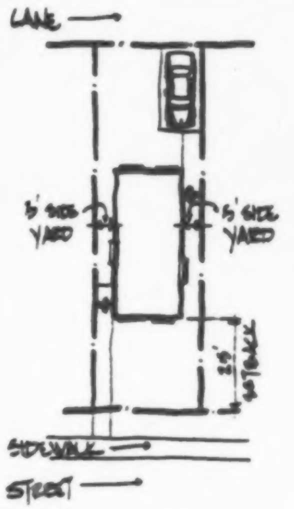
- FRONT YARD SETBACK

(A) 15 FEET


LANE
6' SIDE YARD
6' SIDE YARD
15' SETBACK
SIDEWALK
STREET

- MOST PREFERRED

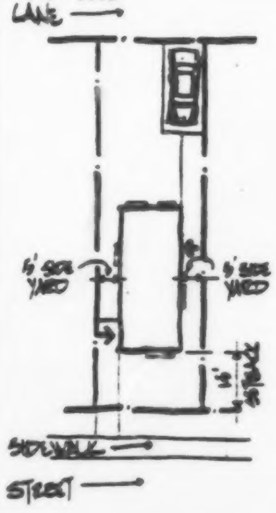
(B) 25 FEET


LANE
6' SIDE YARD
6' SIDE YARD
25' SETBACK
SIDEWALK
STREET

- PREFERRED IF (A) HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- PLAIN FACADE
- BI-LEVEL STYLE

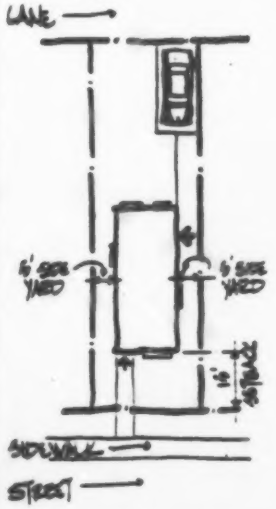
- MAIN ENTRY LOCATION

(A) SIDE


LANE
6' SIDE YARD
6' SIDE YARD
15' SETBACK
SIDEWALK
STREET

- MOST PREFERRED

(B) FRONT


LANE
6' SIDE YARD
6' SIDE YARD
15' SETBACK
SIDEWALK
STREET

- ESSENTIALLY SAME PREFERENCE AS FOR (A) IF OTHER ATTRIBUTES THE SAME

LEGEND. MAIN ENTRY ↑ 2ND ENTRY ⇑ WINDOW ━

- half bath - the perceived value of a half bath was such amongst TYPE 1 buyers that few, if any, would forego a half bath on the main floor for a $1500 cost saving in total unit price. Nine in 10 maximum space buyers would want at least one half bath in the next new unit they purchased. The decline in TYPE 1 buyer preferences resulting from the absence of a half bath could not be compensated for by any of the other unit attributes included in the analysis.
- number of bedrooms - a larger master bedroom and two smaller secondary bedrooms are preferred by maximum space buyers over only two large bedrooms. About 20% of buyers in this group would even prefer four bedrooms in their next home.
- kitchen layout - a number of attributes were considered in evaluating buyer preferences for kitchen arrangements. The most important of these was style of kitchen counter layout. Preferences are greatest with a "U" shaped layout. The other alternatives reduced preferences substantially; a simple "in-line" layout more so than an "L" shaped layout. Kitchen space should also be large enough to allow meals to be eaten in the kitchen. Lack of this attribute is difficult to compensate for.

The other kitchen-related attributes evaluated were type of kitchen storage and cupboard door style. TYPE 1 buyers are essentially indifferent to whether storage space is provided by overhead cupboards or by a walk-in pantry. Plain cupboard doors are, however, preferred over styled cupboard doors.

The evaluation of internal design attributes also included the following:

- dining area location - TYPE 1 buyer preferences are greatest if the dining area is integrated with the living room, which essentially results in two choices in eating areas given the preference for an eat-in kitchen. Living room size will tend to be somewhat smaller with these arrangements but the increased preference more than offsets the decline in preference resulting from less living room area.

- stairway location - stairs which lead to another level should be located near an entry in order to have a positive effect on TYPE 1 buyer preferences. In a split-level style this preference may be difficult to meet.
- main entry foyer - an entrance hall or foyer is not preferred by maximum space buyers. Preferences are higher if more area can be given over to living space.
- second entry type - a sliding patio door is often used for second entries. TYPE 1 buyers tend to be relatively indifferent to whether a patio door or hinged door is used as a second entry.

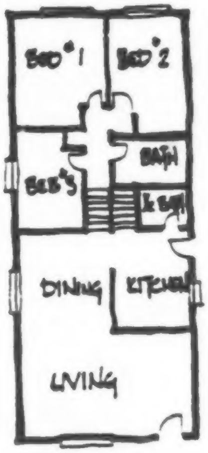
Although variances in internal design attributes can have a major effect on increasing or decreasing TYPE 1 buyer preferences, a considerable number of alternatives in internal layout and design are still possible. A main floor layout for a split-level style and a kitchen layout incorporating attributes most important to TYPE 1 buyer preferences are shown in Figure 5.3.

5.1.3 trade-offs in construction-related attributes: maximum space buyers

Quality of materials and workmanship in flooring, wall surfaces, doors, fixtures, insulation and soundproofing are very important to most new home buyers. In the context of this study construction-related attributes were examined from the perspective of identifying possible trade-offs involving buyer completion of non-structural items in return for cost savings or improvements in quality elsewhere. The following items left for buyer completion were considered in terms of their effect on preference:

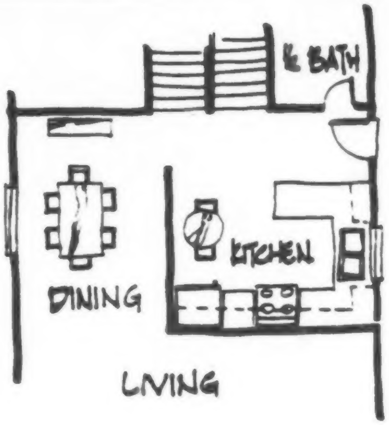
FIGURE 5.3 PREFERRED INTERNAL DESIGN ATTRIBUTES:
TYPE 1/MAXIMUM SPACE BUYERS [see text for details]

- MAIN FLOOR LAYOUT


BED #1
BED #2
BATH
BED #3
½ BATH
DINING
KITCHEN
LIVING

- SPLIT-LEVEL STYLE
- OVERALL DIMENSIONS
  20 FT. X 42 FEET

- KITCHEN LAYOUT


½ BATH
DINING
KITCHEN
LIVING

- "U" SHAPED COUNTER
- EAT-IN KITCHEN
- PLAIN CUPBOARD DOORS
- OVERHEAD STORAGE

- overhead cupboards not installed or uncompleted pantry for a $500 cost saving;
- all interior walls unpainted for a $1000 cost saving;
- no light fixtures or closet doors for a $700 cost saving;
- floors left at the subfloor stage for a $1300 cost saving;
- all floors finished with linoleum for a $300 saving.

Leaving these items for buyer completion would have a major negative effect on maximum space buyer preferences. Only if faced with a choice between a completed unit without a half bath and an unfinished unit with a half bath are buyers in this group somewhat more amenable to completing some non-structural aspects themselves.

Buyers in this group are, however, willing to make some trade-offs for about $1000 worth of upgraded insulation. Specifically, the increase in buyer preferences for a unit with upgraded insulation tends to offset the decrease in preference resulting from all linoleum floors or buyer completion of additional kitchen storage space.

5.1.4 cost saving trade-offs: maximum space buyers

Trade-offs so far discussed for TYPE 1 buyers have focused mainly on those that result in increased buyer preference without necessarily increasing costs. Trade-offs which reduce direct construction costs without reducing preference are relatively limited for maximum space buyers.

Reductions in unit area can generally not be used to reduce unit price for TYPE 1 buyers without seriously affecting preferences. Some savings may be realized in facade treatments if additional costs are compensated for by a 100 square foot area reduction. Builder estimates of the cost difference between a fancy and plain facade averaged $1500. A 100 square feet less area is estimated by builders to save approximately $2,300 in direct construction costs. Based on the analysis, it would appear that at least some TYPE 1 buyers would trade facade treatment for square footage. Other than this, no other cost saving areas could be used for TYPE 1 buyers without reducing preference.

5.2 TYPE 2/Style Buyers

The proportion of recent and prospective single-detached unit buyers classified as TYPE 2 buyers was approximately the same as maximum space buyers; i.e., 23% of survey respondents. Preferences for specific unit attributes and trade-offs in these attributes are summarized in a preference trade-off matrix for style buyers and shown in Figure 5.4. The implications of these trade-offs for unit design and cost savings are discussed below in terms of each of the three major design requirement or attribute sets.

5.2.1 trade-offs in external design attributes: style buyers

Two unit attributes associated with the set of external design requirements are of most importance to TYPE 2 buyer preferences: i.e.,

- unit style - although unit style has a major effect on most buyer types' preferences, it is even more important for TYPE 2 buyers. The majority of buyers in this group prefer a split-level style irrespective of lot dimensions; i.e.,

• preferred unit style	- split-level	52% of buyers
	- bi-level	22% of buyers
	- bungalow	21% of buyers
	- two storey	6% of buyers

TRADE-OFFS INCREASING PREFERENCE:

	EXTERNAL DESIGN ATTRIBUTES													INTERNAL DESIGN ATTRIBUTES												CONSTRUCTION RELATED ATTRIBUTES					
TRADE-OFFS DECREASING PREFERENCE:	1. FANCY FACADE	2. RECTANGULAR SHAPE	3. SPLIT-LEVEL STYLE	4. BI-LEVEL STYLE	5. BUNGALOW STYLE	6. 15 FT. SET-BACK	7. BACKYARD PARKING	8. 25 FT. UNIT WIDTH	9. 100 SQ. FT. MORE AREA	10. 200 SQ. FT. MORE AREA	11. MAIN ENTRY FRONT	12. 2ND ENTRY BACK	13. SIDE WINDOWS	14. FOYER	15. HINGED DOOR	16. STAIRS BY ENTRY	17. LARGE LIVING RM.	18. 3 BEDROOMS	19. ½ BATH	20. DINING/KITCHEN AREA	21. "U" SHAPED KITCHEN	22. "I" SHAPED KITCHEN	23. PANTRY	24. STYLED CPBD. DOORS	25. EAT-IN KITCHEN	26. KIT. STORAGE COMPLETE	27. LIGHTS/DOORS INSTALLED	28. WALLS PAINTED	29. CARPET FLOORING	30. LINO FLOORING ONLY	31. UPGRADED INSULATION
1. PLAIN FACADE			○	○														○	○		○								○	○	
2. "EL" SHAPED UNIT	○		○	○	○	○	○		○	○			○	○		○		○	○		○	○		○	○	○	○	○	○	○	○
3. BI-LEVEL STYLE	○					○												○	○		○	○		○	○	○	○	○	○	○	○
4. BUNGALOW STYLE	○																	○	○		○			○				○	○	○	○
5. TWO-STOREY STYLE																		○			○								○		
6. 25 FT. SET-BACK	○		○	○	○													○	○		○	○		○	○	○	○	○	○	○	○
7. FRONT YARD PARKING	○		○	○	○	○												○	○		○	○		○	○	○	○	○	○	○	○
8. 20 FT. UNIT WIDTH	○	○	○	○	○	○	○		○	○	○		○	○		○		○	○	○	○	○		○	○	○	○	○	○	○	○
9. 100 SQ. FT. LESS AREA	○		○	○	○	○	○						○	○		○		○	○		○	○		○	○	○	○	○	○	○	○
10. 200 SQ. FT. LESS AREA	○		○	○	○	○	○											○	○		○	○		○	○	○	○	○	○	○	○
11. MAIN ENTRY SIDE	○	○	○	○	○	○	○	○	○	○			○	○		○		○	○	○	○	○		○	○	○	○	○	○	○	○
12. 2ND ENTRY SIDE	○	○	○	○	○	○	○	○	○	○	○		○	○		○		○	○	○	○	○		○	○	○	○	○	○	○	○
13. NO SIDE WINDOWS	○		○	○	○	○	○			○						○		○	○		○	○		○	○	○	○	○	○	○	○
14. NO FOYER	○		○	○	○	○	○			○			○			○		○	○		○	○		○	○	○	○	○	○	○	○
15. PATIO DOOR	○	○	○	○	○	○	○		○	○	○	○	○	○		○		○	○	○	○	○		○	○	○	○	○	○	○	○
16. STAIRS CENTRAL	○		○	○	○	○	○											○	○		○	○		○	○	○	○	○	○	○	○
17. SMALL LIVING RM.	○	○	○	○	○	○	○		○	○	○	○	○	○		○		○	○	○	○	○		○	○	○	○	○	○	○	○
18. 2 BEDROOMS																															
19. NO ½ BATH																		○			○								○		
20. DINING/LIVING AREA	○	○	○	○	○	○	○		○	○			○			○		○	○		○	○		○	○	○	○	○	○	○	○
21. "I" SHAPED KITCHEN	○		○	○														○	○									○	○	○	○
22. "L" SHAPED KITCHEN																		○											○		
23. OVERHEAD CPBDS.	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○	○
24. PLAIN CPBD. DOORS	○		○	○														○	○		○								○	○	
25. NO EAT-IN KITCHEN	○		○	○	○													○	○		○	○		○	○	○	○	○	○	○	○
26. KIT. STORAGE UNCOMP.	○		○	○	○													○	○		○	○		○			○	○	○	○	○
27. NO LIGHTS/DOORS	○		○	○														○	○		○			○				○	○	○	○
28. NO PAINT	○		○	○														○	○		○								○	○	
29. LINO FLOORING ONLY																		○			○										
30. NO FLOORING																		○													
31. STD. INSULATION	○		○	○														○	○		○							○	○	○	

FIGURE 5.4 PREFERENCE TRADE-OFF MATRIX: TYPE 2/STYLE BUYERS

LEGEND: ○ INCREASED PREFERENCE FOR ATTRIBUTE ALONG THE TOP OFFSETS DECREASED PREFERENCE FOR ATTRIBUTE DOWN THE SIDE

NOTE:
1. STYLE:
   - DECREASING PREFERENCE FROM SPLIT-LEVEL
   - INCREASING PREFERENCE FROM TWO-STOREY
2. KITCHEN LAYOUT:
   - DECREASING PREFERENCES FROM "U" SHAPE
   - INCREASING PREFERENCE FROM "L" SHAPE
3. FLOORING:
   - DECREASING PREFERENCE FROM COMPLETED FLOORING
   - INCREASING PREFERENCE FROM NO FLOORING

The only trade-off that style buyers would make for unit style in terms of the other external design attributes examined, is a fancy or decorative facade treatment. Buyers in this group would prefer a bi-level or bungalow style with a fancy facade to a split-level with a plain facade. The decline in preference result- from a two-storey style could not be compensated for by trade-offs in any of the other external design attributes.

- facade treatment - a decorative or fancy facade treatment is also very important to style buyer preferences. Most buyers in this group prefer a smaller unit [100 sq. ft. less] with a fancy facade to a unit with a plain facade and a lower price [$1000 less], unless, of course, the fancy facade happens to be on a two-storey unit.

In comparison to unit style and facade treatment, the other unit attributes included in the set of external design requirements, although still important, have relatively less effect on style buyer preferences: i.e.,

- front yard setback - a small, 15 foot deep, front yard and a larger backyard area is preferred by TYPE 2 buyers. Only unit style, excepting a two-storey style, and a fancy facade can compensate for the decline in preference resulting from a 25 foot front yard setback.
- parking location - style buyers tend to prefer rear lane access to backyard parking to other alternatives.
- window location - preference is greatest for windows on all unit sides. The lack of windows overlooking separation spaces between units results in a decline in TYPE 2 buyer preferences. This decline can be compensated by a 15 foot frontyard setback, a split-level style or a fancy facade.

- unit area - trade-offs in unit area for cost savings result in a decline in TYPE 2 buyer preferences. However, unlike maximum space buyers, style buyers will accept a smaller unit and a lower price in order to get a unit other than a two-storey, a fancy facade, backyard parking or a 15 foot setback.
- unit shape - a rectangular shaped unit is preferred to an "EL" shaped unit with 100 square feet less area by style buyers. Preference for the rectangular shape will however be less if style, facade, setback or window location preferences are not met.
- unit width - whether a unit is 20 feet or 25 feet wide does not affect style buyer preferences greatly. Most prefer a wider unit but would accept a narrower unit in order to allow windows to be located on all sides.
- entry locations - TYPE 2 buyers prefer front and back entry locations but if this is not possible due to unit style or other constraints, variations in entry locations are quite acceptable.

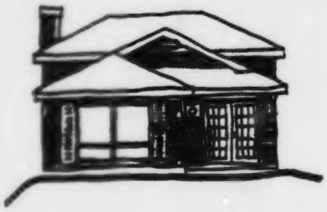
In order to maximize style buyer preferences in external design attributes, style, appearance, setback and parking locations tend to restrict design alternatives. However, flexibility exists with respect to the other attributes examined. Variations in some of these are shown in Figure 5.5.

5.2.2 trade-offs in internal design attributes: style buyers

Most important to style buyers' preferences in terms of internal design attributes of a single-detached house are number of bedrooms, a half bath on the main floor and kitchen counter layout. In this respect, buyers in this group are quite similar to other buyer types: i.e.,

FIGURE 5.5 PREFERRED EXTERNAL DESIGN ATTRIBUTES:
TYPE 2/STYLE BUYERS [see text for details]

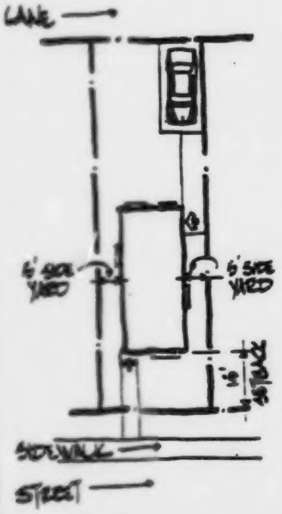
- UNIT STYLE & APPEARANCE



- MOST PREFERRED
- SPLIT-LEVEL STYLE
- FANCY FACADE

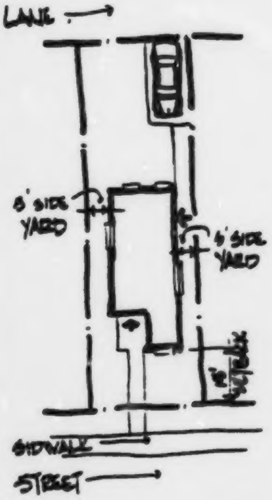
- UNIT SHAPE

(A) RECTANGULAR


LANE →
6' SIDE YARD
6' SIDE YARD
SETBACK
SIDEWALK →
STREET →

- MOST PREFERRED

(B) "EL" SHAPE


LANE →
6' SIDE YARD
6' SIDE YARD
SETBACK
SIDEWALK →
STREET →

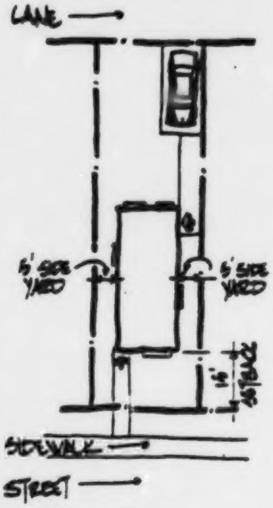
- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- BI-LEVEL STYLE
- PLAIN FACADE
- SAME UNIT AREA

LEGEND. ENTRY ↑ 2ND ENTRY ⇧ WINDOW —▭—

FIGURE 5.5 cont'd. PREFERRED EXTERNAL DESIGN ATTRIBUTES: TYPE 2/STYLE BUYERS

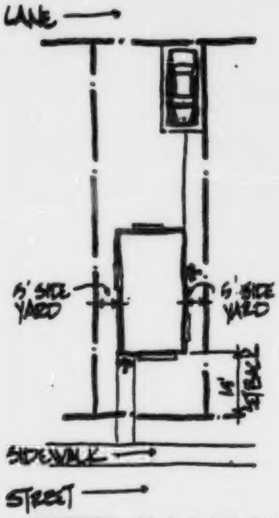
- UNIT AREA

[A] 0 SQ. FT. LESS


LANE
5' SIDE YARD
5' SIDE YARD
16' SETBACK
SIDEWALK
STREET

- MOST PREFERRED

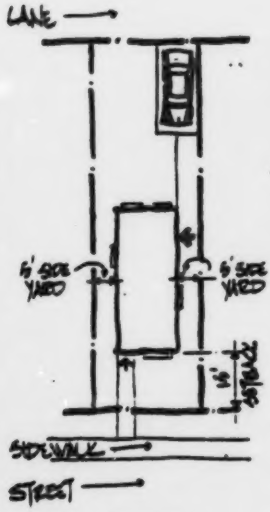
[B] 200 SQ. FT. LESS


LANE
5' SIDE YARD
5' SIDE YARD
16' SETBACK
SIDEWALK
STREET

- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- BI-LEVEL STYLE
- PLAIN FACADE
- PRICE DIFFERENCE OF MORE THAN $4000

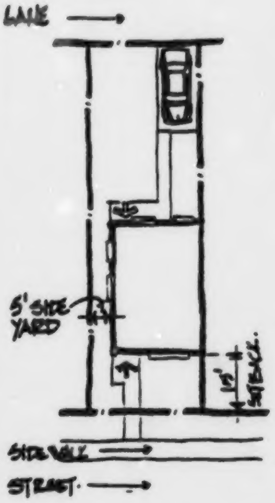
- UNIT WIDTH & WINDOW LOCATION

[A] 20 FEET


LANE
5' SIDE YARD
5' SIDE YARD
16' SETBACK
SIDEWALK
STREET

- MOST PREFERRED

[B] 25 FEET


LANE
5' SIDE YARD
15' SETBACK
SIDEWALK
STREET

- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- BI-LEVEL STYLE
- PLAIN FACADE
- 200 SQ. FT. LESS AREA

LEGEND. MAIN ENTRY ↑ 2ND ENTRY ⇑ WINDOW ━

- number of bedrooms - relative to the other unit attributes examined, number of bedrooms has the greatest effect on TYPE 2 buyer preferences. The decrease in preference for a unit not having at least three bedrooms, a large master bedroom and two smaller secondary bedrooms is such that buyers would trade any of the other attributes in order to have a three bedroom unit.

- half bath - a $1,500 cost saving for no half bath on the main floor is not a trade-off preferred by TYPE 2 buyers. Over 90% of buyers in this group want at least one half bath in their next home. The only conditions under which they would forego a half bath would be to get a three bedroom unit or their preferred kitchen layout.

- kitchen layout - preferences for kitchen layout and eating arrangements are somewhat different for TYPE 2 buyers than those previously discussed for TYPE 1 buyers. Although a "U" shaped kitchen counter layout is the most preferred, an "L" shaped kitchen is not the second choice for style buyers. Instead, most preferred a simple, "in-line" design to an "L" shape.

  Other aspects of kitchen design and layout are also important to TYPE 2 buyers. A combined kitchen/dining area is preferred over a dining/living area combination. The location of the dining area is only of minor importance to preferences but an eating area should be provided in the kitchen. Styled cupboard doors instead of plain doors are quite important to TYPE 2 buyer preferences. Buyers are however, essentially indifferent to whether extra kitchen storage space is provided by overhead cupboards or a walk-in pantry, as long as enough space is provided.

In comparison to aspects of kitchen design and layout, other internal design attributes have relatively less effect on style buyer preferences: i.e.,

- foyer - preferences are generally increased if a main entry foyer or hall provides a transition space from the entry to the living room. Living room size itself, that is, whether more area is allocated to the living room or more to the dining area, makes little or no difference to TYPE 2 buyers as a group.
- stairway location - stairs should be located next to an entry in order to increase preferences. Again, this may be difficult to do if unit style preferences are to be met.
- second entry type - a hinged door instead of a patio door is preferred by style buyers. Variances in this unit attribute have only a minor effect on preference.

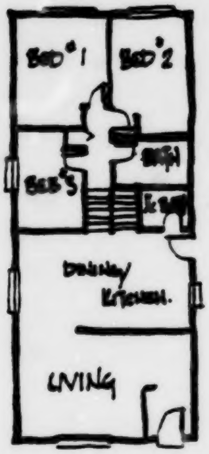
An example of a main floor layout in a split-level design and a kitchen layout which include unit attributes most preferred by TYPE 2 buyers are shown in Figure 5.6.

5.2.3 trade-offs in construction related attributes: style buyers

Leaving any of the non-structural items included in the analysis for buyer completion in exchange for cost savings would result in a major decline in style buyer preferences. This is especially true for finished flooring and painting of interior walls. Upgraded insulation is also highly valued by TYPE 2 buyers. The increase in preference resulting from $1000 worth of upgraded insulation tends to be more than the decline in preference resulting from leaving light fixtures and closet doors or kitchen storage for buyer completion. Savings in one but not both of these aspects could be used to offset increased insulation costs.

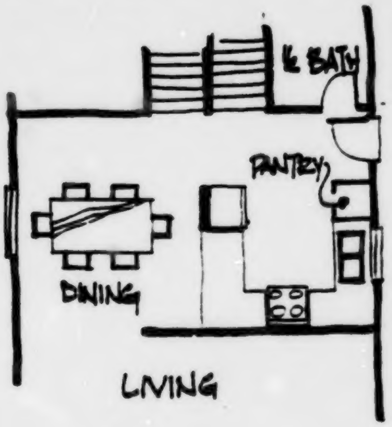
FIGURE 5.6 **PREFERRED INTERNAL DESIGN ATTRIBUTES: TYPE 2/STYLE BUYERS** [see text for details]

- **MAIN FLOOR LAYOUT**


BED #1
BED #2
BATH
BED #3
½ BATH
DINING/
KITCHEN.
LIVING

- SPLIT-LEVEL STYLE
- OVERALL DIMENSIONS 20 FT. X 42 FT.
- BSM'T. DEVELOPMENT POTENTIAL

- **KITCHEN LAYOUT**


½ BATH
PANTRY
DINING
LIVING

- "U" SHAPED COUNTER
- KITCHEN/DINING COMBO
- STYLED CPBD. DOORS
- PANTRY STORAGE

5.2.4 cost saving trade-offs: style buyers

As was the case for TYPE 1 buyers, no major cost reductions involving the unit attributes examined are possible for style buyers without adversely affecting preferences or liveability. Some savings could be attained in trading facade treatment for unit area but these would be relatively minor. A bit more flexibility in total unit size is available with TYPE 2 buyers. How much area reduction could take place would depend very much on whether preferred unit styles and/or facade treatments were available in a housing market. In order to get a split-level with a fancy facade most style buyers would trade off for a less expensive and smaller unit. This of course would only be the case if larger split-levels were not available.

5.3 TYPE 3/Facade Buyers

About one in three prospective and recent buyers of single-detached units were classified as TYPE 3 or facade buyers. Buyer preferences for this group are summarized in the preference trade-off matrix shown in Figure 5.7 and discussed below.

5.3.1 trade-offs in external design attributes: facade buyers

External design attributes tend to be either of major or minor importance to facade buyer preferences; few attributes have a moderate effect on preferences. Unit attributes with a major effect on TYPE 3 buyer preferences are:

- facade treatment - a plain facade has such a negative effect on TYPE 3 buyer preferences that buyers in this group would not trade a $1000 cost saving, unit area or any of the other external design attributes for a plain facade.
- window location - having windows on all unit sides also has a major effect on buyer preferences. The only trade that would be made in terms of external attributes for no side windows is a decorative or fancy facade.

TRADE-OFFS INCREASING PREFERENCE:

	EXTERNAL DESIGN ATTRIBUTES													INTERNAL DESIGN ATTRIBUTES													CONSTRUCTION RELATED ATTRIBUTES					
TRADE-OFFS DECREASING PREFERENCE:	1. FANCY FACADE	2. "EL" SHAPED UNIT	3. BI-LEVEL STYLE	4. SPLIT-LEVEL STYLE	5. TWO-STOREY	6. 15 FT. SET-BACK	7. BACK YARD PARKING	8. 20 FT. UNIT WIDTH	9. $2000 COST SAVING	10. $4000 COST SAVING	11. MAIN ENTRY FRONT	12. 2ND ENTRY BACK	13. SIDE WINDOWS	14. NO FOYER	15. HINGED DOOR	16. STAIRS BY ENTRY	17. LARGE LIVING RM.	18. 3 BEDROOMS	19. ½ BATH	20. DINING/LIVING AREA	21. "U" SHAPED KITCHEN	22. "L" SHAPED KITCHEN	23. OVERHEAD CPBDS.	24. STYLED CPBD. DOORS	25. EAT-IN KITCHEN	26. KIT. STORAGE COMPLETE	27. LIGHTS/DOORS INSTALLED	28. WALLS PAINTED	29. CARPET FLOORING	30. LINO FLOORING ONLY	31. UPGRADED INSULATION
1. PLAIN FACADE																			○		○										
2. RECTANGULAR SHAPE	○		○	○	○	○	○	○	○	○	○	○	○		○	○		○	○		○	○		○	○	○	○	○	○	○	○
3. SPLIT-LEVEL STYLE	○						○						○					○	○		○					○	○	○	○		○
4. TWO-STOREY STYLE	○												○						○		○										○
5. BUNGALOW STYLE	○												○						○		○										
6. 25 FT. SET-BACK	○		○	○	○		○	○		○	○		○		○	○		○	○		○	○		○	○	○	○	○	○	○	○
7. FRONT YARD PARKING	○		○	○									○					○	○		○	○							○		○
8. 25 FT. UNIT WIDTH	○		○	○	○		○						○					○	○		○	○		○	○	○	○	○	○		○
9. NO $2000 SAVING	○		○	○	○	○	○	○			○		○		○	○		○	○		○	○		○	○	○	○	○	○	○	○
10. NO $4000 COST SAVING	○		○	○	○		○	○			○		○		○	○		○	○		○	○		○	○	○	○	○	○	○	○
11. MAIN ENTRY SIDE	○		○	○	○		○						○		○	○		○	○		○	○		○	○	○	○	○	○		○
12. 2ND ENTRY SIDE	○		○	○	○	○	○	○		○	○		○		○	○		○	○		○	○		○	○	○	○	○	○	○	○
13. NO SIDE WINDOWS	○																		○		○										
14. FOYER	○	○	○	○	○	○	○	○	○	○	○	○	○		○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○
15. PATIO DOOR	○		○	○	○		○						○			○		○	○		○	○		○	○	○	○	○	○		○
16. STAIRS CENTRAL	○		○	○			○						○					○	○		○	○			○	○	○	○	○		○
17. SMALL LIVING RM.	○	○	○	○	○	○	○	○	○	○	○	○	○		○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○
18. 2 BEDROOMS	○		○										○						○		○										○
19. NO ½ BATH																					○										
20. DINING/KITCHEN AREA	○		○	○	○	○	○	○	○	○	○	○	○		○	○		○	○		○	○		○	○	○	○	○	○	○	○
21. "L" SHAPED KITCHEN																															
22. "I" SHAPED KITCHEN																															
23. PANTRY	○		○	○	○	○	○	○	○	○	○	○	○		○	○		○	○		○	○		○	○	○	○	○	○	○	○
24. PLAIN CPBD. DOORS	○		○	○			○						○					○	○		○	○			○	○	○	○	○	○	○
25. NO EAT-IN KITCHEN	○		○	○			○						○					○	○		○	○				○	○	○	○		○
26. KIT. STORAGE UNCOMP.	○		○	○			○						○					○	○		○	○						○	○		○
27. NO LIGHTS/DOORS	○		○	○			○						○					○	○		○	○						○	○		○
28. NO PAINT	○		○	○									○					○	○		○	○							○		○
29. LINO FLOORING ONLY	○		○	○			○						○					○	○		○	○						○			○
30. NO FLOORING	○		○										○					○	○		○										○
31. STD. INSULATION	○		○										○					○	○		○										

FIGURE 5.7 **PREFERENCE TRADE-OFF MATRIX: TYPE 3/FACADE BUYERS**

LEGEND: ○ INCREASING PREFERENCE FOR ATTRIBUTE ALONG THE TOP OFFSETS DECREASED PREFERENCE FOR ATTRIBUTE DOWN THE SIDE

NOTE: 1. STYLE:
- DECREASING PREFERENCE FROM BI-LEVEL
- INCREASING PREFERENCE FROM BUNGALOW

2. KITCHEN LAYOUT:
- DECREASING PREFERENCE FROM "U" SHAPE
- INCREASING PREFERENCE FROM "I" SHAPE

3. FLOORING:
- DECREASING PREFERENCE FROM COMPLETE FLOORING
- INCREASING PREFERENCE FROM NO FLOORING

- unit style - facade buyers are much more variable in their preference for unit style than are TYPE 1 or TYPE 2 buyers. If lot size were not a constraint most facade buyers would prefer a split-level style for their next home; i.e.,

---

• preferred unit style	- split-level	39% of buyers
	- bi-level	26% of buyers
	- two-storey	19% of buyers
	- bungalow	16% of buyers

Given a 30 foot wide lot buyer preferences are greatest with a bi-level style and not much lower with a split-level style. A two-storey style or bungalow style on a narrow lot result in a more substantial decrease in facade buyer preferences.

The only other external design attribute which had a more than slight effect on facade buyer preferences is parking location. Preference is greatest with rear lane access to backyard parking. Most buyers would,however, accept front yard parking if this resulted in getting a split or bi-level unit with a decorative facade and windows on all four sides.

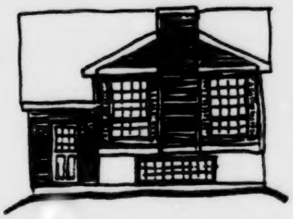
Facade buyers are essentially indifferent to variations in the other external design attributes included in the analysis. Unit width, shape, front yard setback or entry location had only minor effects on increasing or decreasing buyer preferences. TYPE 3 buyers were also relatively indifferent to trading off unit area for cost savings. Preferences were slightly higher with the cost savings than with no reductions in unit area.

Provided that a single-detached unit has a fancy or decorative facade, windows on all sides and is a bi-level or split level style, facade buyers will accept variations in other external attributes. Some of the more acceptable variations are shown in Figure 5.8

FIGURE 5.8 PREFERRED EXTERNAL DESIGN ATTRIBUTES:
TYPE 3/FACADE BUYERS [see text for details]

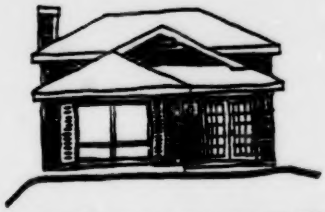
- UNIT STYLE

[A] BI-LEVEL



- MOST PREFERRED

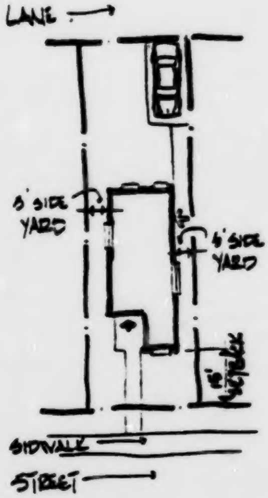
[B] SPLIT-LEVEL



- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- NO SIDE WINDOWS
- FRONT YARD PKG.

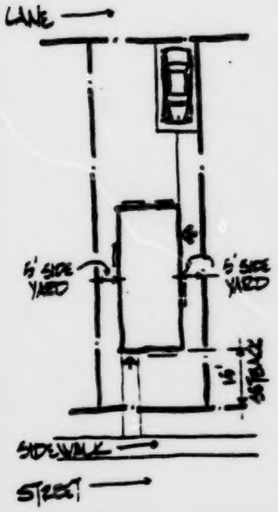
- UNIT SHAPE

[A] "EL" SHAPE


LANE
5' SIDE YARD
5' SIDE YARD
15' SETBACK
SIDEWALK
STREET

- MOST PREFERRED

[B] RECTANGULAR


LANE
5' SIDE YARD
5' SIDE YARD
15' SETBACK
SIDEWALK
STREET

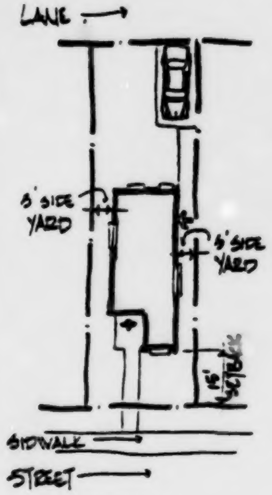
- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- SPLIT-LEVEL STYLE
- PLAIN FACADE

LEGEND. ENTRY ↑ 2nd ENTRY ⇑ LOT LINE —·—.

FIGURE 5.8 cont'd. PREFERRED EXTERNAL DESIGN ATTRIBUTES: TYPE 3/FACADE BUYERS

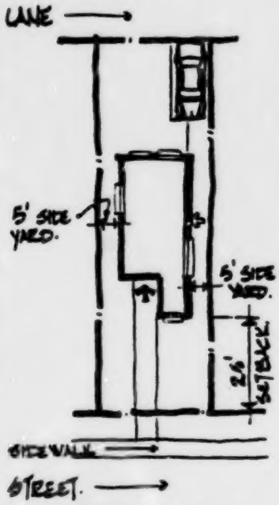
- FRONT YARD SETBACK

[A] 15 FEET


LANE →
5' SIDE YARD
5' SIDE YARD
15' SETBACK
SIDEWALK →
STREET →

- MOST PREFERRED

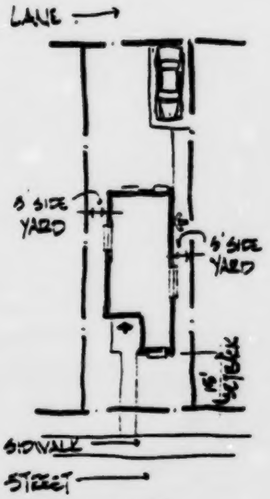
[B] 25 FEET


LANE →
5' SIDE YARD.
5' SIDE YARD.
25' SETBACK
SIDEWALK →
STREET. →

- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- SPLIT-LEVEL STYLE
- PLAIN FACADE

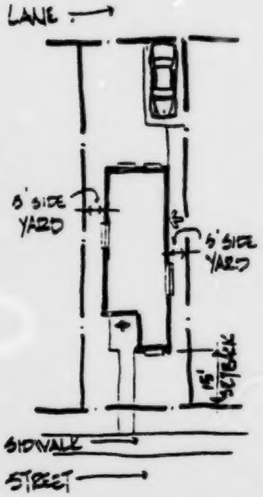
- UNIT AREA

[A] $4000 SAVING


LANE →
5' SIDE YARD
5' SIDE YARD
15' SETBACK
SIDEWALK →
STREET →

- MOST PREFERRED
  [200 SQ. FT. LESS AREA]

[B] $0 saving


LANE →
5' SIDE YARD
5' SIDE YARD
15' SETBACK
SIDEWALK →
STREET →

- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- SPLIT-LEVEL STYLE
- PLAIN FACADE

LEGEND. MAIN ENTRY ↑ 2ND ENTRY ⇑ WINDOW —

5.3.2 trade-offs in internal design attributes: facade buyers

Facade buyer preferences are similar to those of buyer types in that the number of bedrooms, the presence of a half bath on the main floor and kitchen layout have a major effect on preference. However, the relative importance of these internal design attributes, especially bedroom number, is considerably less which allows more flexibility in trade-off options: i.e.,

- kitchen layout - a "U" shaped kitchen layout is an important, if not the most important, unit attribute in terms of facade buyer preferences. The decrease in preference resulting from an "L" shaped or "in-line" kitchen layout could not be compensated for by other unit attributes. Buyers in this group value a "U" shaped kitchen layout to the extent that a two bedroom unit or a unit with no half bath would be preferred if that resulted in obtaining a house with the preferred kitchen layout.

  The size of the kitchen area should also be large enough to accommodate an eating area. Preference is for the location of the main dining area to be integrated with the living area but this has only a minor effect on facade buyer preference. More important are kitchen cupboard doors. Styled doors are preferred over plain cupboard doors. Of least importance in terms of unit attributes related to kitchen design is whether additional storage is provided by overhead cupboards or a walk-in pantry. Preference is slightly increased by overhead cupboards.

- half bath - facade buyer preference is for a unit with one and a half baths. If style preferences and cost saving preferences associated with a smaller unit size are to be met for buyers in this group, the location of a half bath will in most instances be on a different level than the full bathroom.

- number of bedrooms - most TYPE 3 buyers prefer a three bedroom unit; a large master bedroom and two smaller secondary bedrooms. Preference for three bedrooms is not as great as with other buyer types. A two bedroom unit with a half bath or with a decorative facade, for example, would be preferred to a three bedroom unit without these features.

Facade buyer preferences were also affected by variations in the following internal design attributes:

- stairway location - preferences of facade buyers were greatest with stairs located near an entry instead of a more central location.
- second entry type - in contrast to most other types, entry type is relatively important to facade buyer preferences. A hinged door is definitely preferred over a sliding patio door as the second entry.

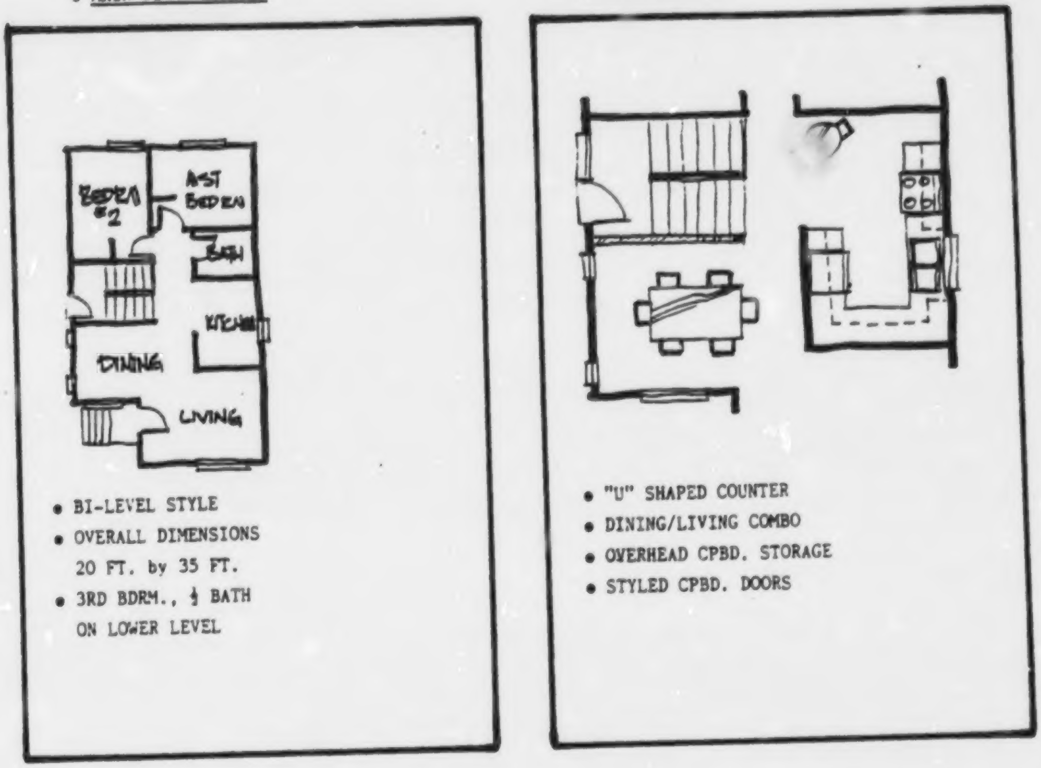
On the whole, facade buyers are relatively indifferent to living room size and the presence of a main entry foyer. Buyer preferences are only very slightly increased with a larger living room and smaller dining area and no foyer.

Facade buyer preferences in internal design attributes are summarized in Figure 5.9 which shows the main floor layout of a smaller bi-level unit and a kitchen layout incorporating attributes with a major effect on preferences.

5.3.3 trade-offs in construction - related attributes: facade buyers

Although aspects of construction quality are no less important to the purchase decision of TYPE 3 buyers than they are to the previous buyer types discussed, the effect of leaving non-structural items for buyer completion does not decrease facade buyer preferences as much.

FIGURE 5.9 PREFERRED INTERNAL DESIGN ATTRIBUTES: TYPE 3/FACADE BUYERS [see text for details]


BEDRM #2
1ST BEDRM
BATH
KITCHEN
DINING
LIVING

- MAIN FLOOR LAYOUT
- BI-LEVEL STYLE
- OVERALL DIMENSIONS 20 FT. by 35 FT.
- 3RD BDRM., ½ BATH ON LOWER LEVEL

- KITCHEN LAYOUT
- "U" SHAPED COUNTER
- DINING/LIVING COMBO
- OVERHEAD CPBD. STORAGE
- STYLED CPBD. DOORS

Upgraded insulation is the most important construction-related trade-off in terms of facade buyer preferences. Its effect on increasing buyer preferences is greater than the decline in preference resulting from leaving painting, light fixtures or floor finishing for buyer completion. This suggests that a good proportion of facade buyers would be willing to trade off the completion of at least one of these non-structural items for about $1000 worth of improved insulation.

5.3.4 cost saving trade-offs: facade buyers

Households classified as TYPE 3 or facade buyers are the first group of buyers to be discussed in this section for whom cost saving trade-offs can be made without necessarily reducing preference for a single-detached unit. Major cost reductions can be attained in reducing unit area without decreasing preferences. Average preferences of these buyers even increase slightly with cost savings in this unit attribute. Trade-offs in buyer completion, although not reducing net costs, can also be made with this buyer type in order to compensate for the increased cost of upgraded insulation.

5.4 TYPE 4/Minimum Price Buyers

The fourth and remaining buyer type derived from the analysis of buyer preferences were prospective and recent single-detached purchasers classified as minimum price buyers [25% of respondents]. Preferences of this buyer group are summarized in the preference trade-off matrix shown in Figure 5.10.

5.4.1 trade-offs in external design attributes: minimum price buyers

TYPE 4 or minimum price buyers are primarily distinguished from other buyer types in the high value or preference they place on realizing cost savings in unit price through trade-offs in unit area. Reductions in unit area with associated cost savings increase TYPE 4 buyers' preferences to a degree which suggests buyers in this group value marginal changes in unit area at less than $20 a square foot.

TRADE-OFFS INCREASING PREFERENCE:

	EXTERNAL DESIGN ATTRIBUTES													INTERNAL DESIGN ATTRIBUTES												CONSTRUCTION RELATED ATTRIBUTES					
TRADE-OFFS DECREASING PREFERENCE	1. FANCY FACADE	2. RECTANGULAR SHAPE	3. SPLIT-LEVEL STYLE	4. TWO-STOREY STYLE	5. BI-LEVEL STYLE	6. 15 FT. SET-BACK	7. FRONT YARD PARKING	8. 25 FT. UNIT WIDTH	9. $2000 COST SAVING	10. $4000 COST SAVING	11. MAIN ENTRY FRONT	12. 2ND ENTRY BACK	13. SIDE WINDOWS	14. FOYER	15. HINGED DOOR	16. STAIRS BY ENTRY	17. LARGE LIVING RM.	18. 3 BEDROOMS	19. ½ BATH	20. DINING/LIVING AREA	21. "U" SHAPED KITCHEN	22. "L" SHAPED KITCHEN	23. OVERHEAD CUPBOARDS	24. STYLED CPBD. DOORS	25. EAT-IN KITCHEN	26. KIT. STORAGE COMPLETE	27. $700 SAVING/LIGHTS/DOORS	28. WALLS PAINTED	29. CARPET FLOORING	30. $1000 SAVING/NO FLR'G.	31. UPGRADED INSULATION
1. PLAIN FACADE																			○		○								○		
2. "EL" SHAPED UNIT	○		○	○	○	○			○	○	○		○	○	○	○	○	○	○	○	○	○		○	○	○		○	○	○	○
3. TWO-STOREY STYLE	○					○			○	○			○			○	○	○	○		○	○		○	○	○		○	○	○	○
4. BI-LEVEL STYLE	○					○			○	○								○	○		○	○		○	○	○			○	○	○
5. BUNGALOW STYLE	○																		○		○	○							○		○
6. 25 FT. SET-BACK	○		○	○	○					○								○	○		○	○		○	○	○			○	○	○
7. BACK YARD PARKING	○	○	○	○	○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
8. 20 FT. UNIT WIDTH	○	○	○	○	○	○			○	○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○		○	○	○	○
9. NO $2000 SAVING	○		○	○	○	○												○	○		○	○		○	○	○			○	○	○
10. NO $4000 SAVING	○		○															○	○		○	○		○	○				○		○
11. MAIN ENTRY SIDE	○		○	○	○	○			○	○			○	○		○	○	○	○	○	○	○		○	○	○		○	○	○	○
12. 2ND ENTRY SIDE	○	○	○	○	○	○			○	○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○		○	○	○	○
13. NO SIDE WINDOWS	○		○	○	○	○			○	○								○	○		○	○		○	○	○			○	○	○
14. NO FOYER	○		○	○	○	○			○	○			○			○	○	○	○	○	○	○		○	○	○		○	○	○	○
15. PATIO DOOR	○		○	○	○	○			○	○			○	○		○	○	○	○	○	○	○		○	○	○		○	○	○	○
16. STAIRS CENTRAL	○		○	○	○	○			○	○								○	○		○	○		○	○	○			○	○	○
17. SMALL LIVING RM.	○		○	○	○	○			○	○								○	○		○	○		○	○	○			○	○	○
18. 2 BEDROOMS	○																		○		○	○		○	○				○		○
19. NO ½ BATH																					○										
20. DINING/KITCHEN AREA	○		○	○	○	○			○	○			○				○	○	○		○	○		○	○	○			○	○	○
21. "L" SHAPED KITCHEN	○																		○										○		
22. "I" SHAPED KITCHEN																															
23. PANTRY	○		○	○	○	○			○	○			○	○		○	○	○	○	○	○	○		○	○	○		○	○	○	○
24. PLAIN CPBD. DOORS	○																		○		○	○							○		○
25. NO EAT-IN KITCHEN	○																		○		○	○							○		○
26. KIT. STORAGE UNCOMP.	○		○							○									○		○	○							○		○
27. NO $700 SAVING	○	○	○	○	○	○			○	○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○		○	○	○	○
28. NO PAINT	○		○	○	○	○			○	○								○	○		○	○		○	○	○			○	○	○
29. NO FLOORING																			○		○										○
30. LINO FLOORING ONLY	○		○							○								○	○		○	○		○	○						
31. STD. INSULATION	○																		○		○								○		

FIGURE 5.10 PREFERENCE TRADE-OFF MATRIX: TYPE 4/MINIMUM PRICE BUYERS

LEGEND: ○ INCREASING PREFERENCE FOR ATTRIBUTE ALONG THE TOP OFFSETS
DECREASED PREFERENCE FOR ATTRIBUTE DOWN THE SIDE

NOTE: 1. STYLE: • DECREASING PREFERENCE FROM SPLIT-LEVEL
• INCREASING PREFERENCE FROM BUNGALOW
2. KITCHEN: • DECREASING PREFERENCE FROM "U" SHAPE
LAYOUT: • INCREASING PREFERENCE FROM "I" SHAPE
3. FLOORING: • DECREASING PREFERENCE FROM COMPLETE FLOORING
• INCREASING PREFERENCE FROM LINO FLOORING

Cost saving trade-offs in area, while important, are not the most important external unit attributes in terms of TYPE 4 buyer preferences. More important than cost savings are facade, style and setback, i.e.,

- facade treatment - minimum price buyers are similar to facade buyers in the high value placed on a decorative facade. The trade-off of 100 square feet in unit area for a fancy or decorative facade has a major positive effect on TYPE 4 buyer preferences. A plain facade would not be accepted by these buyers.
- unit style - a split-level style is the most preferred unit style by TYPE 4 buyers. However, in contrast to to the other buyer types, a two-storey style has only a relatively minor effect on decreasing preferences and is generally preferred to a bi-level or bungalow style given a narrow, 30 foot wide lot. Buyers will prefer a two-storey over a split-level if this means getting a 15 foot setback, a smaller unit at a lower price or windows on all unit sides.
- front yard set-back - a 15 foot front yard set-back is also more important than cost savings. Savings would have to exceed $2000 in order for buyers in this group to accept a 25 foot setback.

Aside from window location, the other unit attributes in the set of external design attributes have only a relatively minor impact on minimum price buyer preferences: i.e.,

- window location - windows on all unit sides are preferred by TYPE 4 buyers. Increasing preferences on this unit attribute requires two side yards and a narrower unit. TYPE 4 buyers are relatively indifferent to unit width.

- entry locations - front and back entry locations tend to result in increased buyer preferences. Second entry location is not very important in terms of preference and can be more or less dictated by unit style requirements.
- unit shape - TYPE 4 buyers are again relatively indifferent to whether unit shape is rectangular or "EL" shaped. Preference was slightly greater with a rectangular shape.
- parking location - the location of parking was the least important external design attribute in terms of TYPE 4 buyer preferences. Street access to front yard parking increased buyer preferences slightly. To meet requlatory requirements for front yard parking the unit would have to be sited along the lot line, to allow space for a side drive. This would restrict window locations to three sides of the unit and decrease preferences much more than the increase resulting from front yard parking.

In designing single-detached units to maximize TYPE 4 buyer preferences, facade treatment, front yard setback, window location, cost savings and the avoidance of bungalow styles must be kept in mind. Figure 5.11 shows a number of variations with the major preference factors included.

5.4.2 trade-offs in internal design attributes: minimum price buyers

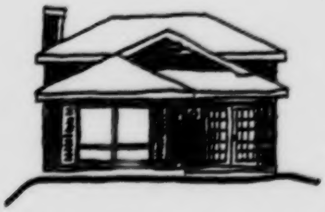
Preferences of minimum price buyers for internal unit attributes are primarily influenced by kitchen layout and design, number of bathrooms and number of bedrooms: i.e.,

- kitchen layout - consistent with preferences of most single-detached buyers, a "U" shaped kitchen has a major effect on increasing TYPE 4 buyers. An "L" shaped counter layout is acceptable if this means getting one and a half baths, but the decline in preference resulting from an "in-line" or "I" shape layout

FIGURE 5.11 PREFERRED EXTERAL DESIGN ATTRIBUTES:
TYPE 4/MINIMUM PRICE BUYERS [see text for details]

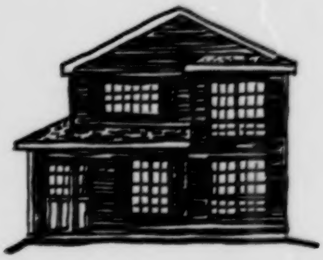
- UNIT STYLE & APPEARANCE

[A] SPLIT-LEVEL



- MOST PREFERRED

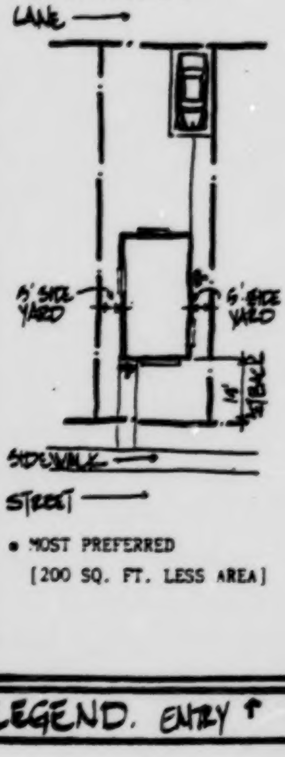
[B] TWO-STOREY



- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- 25 FT. SETBACK
- NO SIDE WINDOWS
- HIGHER PRICE

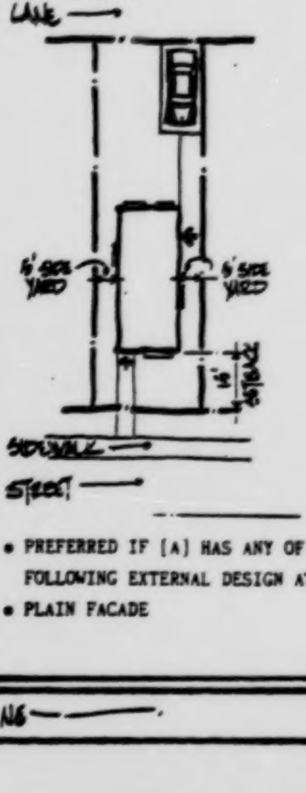
- UNIT AREA

[A] $4000 SAVING


LANE
5' SIDE YARD
5' SIDE YARD
14' SETBACK
SIDEWALK
STREET

- MOST PREFERRED
  [200 SQ. FT. LESS AREA]

[B] $0 SAVING


LANE
5' SIDE YARD
5' SIDE YARD
14' SETBACK
SIDEWALK
STREET

- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- PLAIN FACADE

LEGEND. ENTRY ↑ 2ND ENTRY ⇧ LOT LINE —·——.

cannot be compensated for by any of the other internal design attributes included in the analysis.

A kitchen designed to include an eating area is also important to buyers in this group. Preference is greatest if a choice in eating areas is provided between the kitchen and a dining area integrated with the living area.

Styled kitchen cupboard doors are much preferred over plain doors and overhead cupboard storage is preferred to a walk-in pantry. Altogether, aspects of kitchen design exert a major influence on TYPE 4 buyer preferences for a unit. Design attributes associated with the kitchen area tend to be more important than even the number of bedrooms.

- number of bedrooms - a three bedroom unit is most preferred by minimum price buyers. However, a two bedroom unit will be preferred if this means getting preferred kitchen counter layout, an eating area in the kitchen, styled cupboard doors or one and a half baths.

  The relatively lower preference shown for three bedrooms by TYPE 4 buyers should allow more flexibility in floor plans and layouts. In order to achieve cost savings and meet style preferences, it would be difficult to place all bedrooms on the same level. Splitting bedrooms and the half bath between levels would appear to be acceptable to most minimum price buyers.

Other unit attributes associated with internal design requirements tended to have less of an effect on TYPE 4 buyer preferences: i.e.,

- stairway location - stairs leading to another level should be located near an entry in order to increase buyer preferences.

- living room size - a larger living room and a smaller dining area are preferred by minimum price buyers. Living room size is however, not so important that buyers in this group would eliminate the main entry hall or foyer in order to increase living room size.
- second entry type - single-detached buyers do generally not prefer a sliding patio door as a second entry. Minimum price buyers are also consistent in the preference for a hinged door as a second entry.

Examples of a main floor layout for a smaller, split-level unit and a kitchen layout which contain internal design attributes preferred by minimum price buyers are shown in Figure 5.12.

5.4.3 trade-offs in construction-related attributes: minimum price buyers

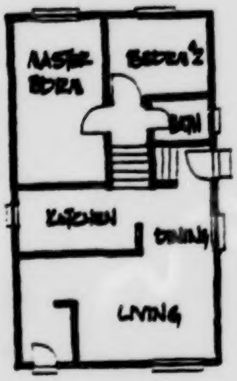
Minimum price buyers are somewhat different from other buyer types in their preferences for degree of construction completion. As a group, buyers tend to be relatively indifferent to whether light fixtures and closet doors are included in the unit or not included for a $700 cost saving. Preferences are increased slightly with the cost saving. Also, preference in flooring differs from other single-detached buyer groups.

Buyer completion of flooring is not preferred by this group. Most would prefer to have a unit with the carpeting and lino installed. However, if it came to a choice between linoleum flooring throughout the unit and a $300 saving or buyer completion of flooring and a $1300 cost saving, the larger cost saving would again be preferred.

Upgraded insulation is also quite important to TYPE 4 buyer preferences. Trade-offs for about $1000 worth of insulation upgrade include buyer completion of overhead cupboard storage, painting of interior walls or flooring.

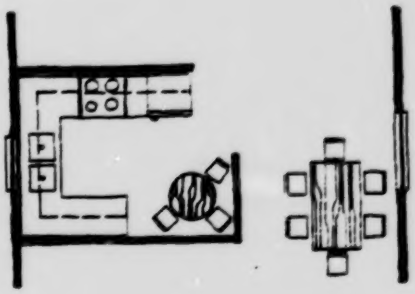
FIGURE 5.12 PREFERRED INTERNAL DESIGN ATTRIBUTES:
TYPE 4/MINIMUM PRICE BUYERS [see text for details]

- MAIN FLOOR LAYOUT


MASTER BDRM
BDRM #2
BATH
KITCHEN
DINING
LIVING

- SPLIT-LEVEL STYLE
- OVERALL DIMENSIONS 20 BY 33 FT.
- 3RD BDRM., ½ BATH ON LOWER LEVEL

- KITCHEN LAYOUT



- "U" SHAPED COUNTER
- DINING/LIVING COMBO
- OVERHEAD CPBD. STORAGE
- STYLED CPBD. DOORS

5.4.4 cost saving trade-offs: minimum price buyers

Minimum price buyers are the other group of single-detached buyers for whom cost saving trade-offs can be made without necessarily reducing preferences. As with facade buyers, major price reductions can be achieved through reductions in unit area. In addition, TYPE 4 buyers also prefer cost savings available through buyer completion of light fixtures and closet doors. Average savings in direct construction costs obtained from builders were $675 for the exclusion of these two items.

Enough flexibility also exists with TYPE 4 buyers to allow improvements in other aspects of construction quality without increasing overall unit costs. Additional costs incurred through the upgrading of insulation and kitchen cabinet quality, for example, can be traded off for cost savings in buyer completion of such items as painting of interior walls or reductions in unit size.

5.5 Implications for the Design of Single-detached Units

Most discussions of single-detached unit buyers usually treat first time buyers as a distinct but undifferentiated market segment. It is hoped, that at the very least, this analysis and review has brought out the fact that some important differences do exist amongst first time buyers and that such differences must be recognized if buyer preferences are to be maximized.

Design decisions in a number of specific areas have a major effect in determining which of the four buyer segments will most prefer a specific single-detached unit and the degree of that preference: i.e.

- unit style - given a narrow, 30 foot wide lot, a split-level or bi-level style is preferred by more buyers than any of the other unit styles analysed. A split-level has the most appeal to maximum space buyers and style buyers; a bi-level will attract facade buyers. If unit style is a two-storey, market size will be considerably limited. Minimum price buyers will take such a unit if preferred unit attributes are not available in other detached units on the market.

- facade treatment - all buyer types preferred a decorative facade to a plain facade even if this resulted in a smaller unit size. The only buyer type attracted to a plain facade are maximum space buyers and then only if unit size and siting preferences can be increased. Use of a plain facade would limit potential size to about 20% of first time buyers.
- unit siting - front yard setback, separation spaces and window locations are important to the preferences of all four buyer types. Maximum space buyers will accept a larger front yard setback for more unit area, a split-level style or a decorative facade. Style buyers will accept a zero-lot-line unit and trade off side window locations for similar considerations. The net effect though, of not having windows on all unit sides or of not minimizing front yard setback is to limit the preference for such units to less than half of first time buyers.
- unit area - major trade-offs in unit area for cost savings can be made with two buyer groups. Both facade buyers and minimum price buyers tend to prefer the savings to unit area. Such trade-offs would not appeal to the other two buyer groups.
- degree of completion - most single-detached buyers prefer a totally completed unit and would not trade off buyer completion of non-structural items for cost savings. Minimum price buyers would prefer cost savings to the completion of light fixtures and closet doors but it is questionable whether such savings would do much to reduce total unit price. Additional costs to improve construction quality and workmanship,

which are of major importance to the purchase decision, will have to be obtained through savings in other design aspects.

Decisions with respect to these design attributes will largely determine which buyer types are most attracted to a particular single-detached unit. Presumably, such decisions will also affect potential market size and saleability of a particular unit.

In addition to unit attributes previously discussed, a number of other attributes, although not as important in determining which buyer type would be most attracted, are also very important in increasing buyer preferences. All four buyer types have a high perceived value for a half bath, a "U" shaped kitchen and three bedrooms. Variations from these unit attributes invariably decrease preferences and are difficult to trade off. This strongly suggests that they must be included in the design of a single-detached unit in order to maximize potential market size.

Total unit price and area are also of major importance in the marketing of new single-detached units. These have not been explicitly discussed as of yet. The implicit assumption made throughout the discussion of single-detached units was that unit prices averaged around $75,000 to $80,000 and unit size was around 1100 square feet.

The analysis of buyer preference was based on responses from both prospective and recent purchasers of new moderately priced units with these price and unit area characteristics. Respondent preferences for total unit area and maximum affordable price in terms of their next home covered a much broader range: i.e.,

• preferred unit area in next home:	TYPE 1	TYPE 2	TYPE 3	TYPE 4
• under 1050 sq. ft.	9%	16%	15%	16%
• 1050-1150 sq. ft.	16%	16%	10%	7%
• 1150-1250 sq. ft.	34%	30%	36%	33%
• 1250-1350 sq. ft.	9%	9%	8%	12%
• 1350-1450 sq. ft.	7%	10%	4%	4%
• 1450 sq. ft. or more	25%	19%	27%	28%
• maximum affordable price for next home:				
• under $75,000	16%	18%	20%	18%
• $75-$80,000	15%	10%	16%	17%
• $80-$85,000	23%	22%	21%	22%
• $85-$90,000	16%	7%	8%	12%
• $90-$95,000	3%	8%	8%	7%
• $95-$100,000	3%	7%	3%	3%
• $100,000 or more	23%	28%	24%	21%

Most recent purchasers tended to have their sights set on a larger, more expensive home for their second purchase. Differences between prospective and recent purchasers are quite evident in the distribution of preferred unit area and maximum affordable price. Overall, though, differences between buyer types are quite minimal. This suggests that designing units for different buyer types is not dependent on price or total unit size. The four buyer types occur in roughly the same proportion in all price and size ranges. Therefore design decisions which seek to improve liveability or reduce costs in moderately priced single-detached units should be based more on the preferences of specific buyer types than price or unit size considerations.

6.0 DESIGN TRADE-OFFS IN SEMI-DETACHED UNITS

The evaluation of buyer preferences for semi-detached unit attributes was much more limited in scope than the evaluation of single-detached or townhouse buyer preferences. The 43 responses received from recent purchasers of new moderately priced semi-detached units was not sufficient in number to allow the segmentation of this group of buyers. Preferences and trade-offs in these preferences will therefore be considered for semi-detached buyers as a whole.

A summary of unit attributes which increase and decrease semi-detached buyer preferences and compensating trade-offs amongst these attributes is shown in matrix form in Figure 6.1. The presentation of information is the same as it was in the discussion of single-detached buyer types.

Trade-offs which result in increased preference or result in cost savings are discussed below in terms of their design implications for semi-detached units.

6.1 Trade-offs in External Design Attributes: Semi-detached Buyers

Most important to semi-detached buyer preferences in terms of the external design attributes included in the analysis are those related to external unit appearance: i.e.,

- facade treatment - a decorative or fancy facade has a major effect on increasing buyer preferences for a unit even if additional costs are offset by reducing unit area by 100 square feet. Few, if any, semi buyers would trade off cost savings or other unit attributes for a plain facade.

  Also associated with aspects of external appearance is the question of whether both attached units should be of identical styles or a mix of styles. Preference is generally increased if styles are mixed. Mixed styles which were specifically analysed were bungalow and two-storey styles. Buyer preference was greatest with a bungalow attached to a two-storey

TRADE-OFFS INCREASING PREFERENCE:

	EXTERNAL DESIGN ATTRIBUTES													INTERNAL DESIGN ATTRIBUTES												CONSTRUCTION RELATED ATTRIBUTES					
TRADE-OFFS DECREASING PREFERENCE:	1. FANCY FACADE	2. RECTANGULAR SHAPE	3. SPLIT-LEVEL STYLE	4. BI-LEVEL STYLE	5. TWO-STOREY STYLE	6. DIFFERENT SIDES	7. 15 FT. SET-BACK	8. 25 FT. UNIT WIDTH	9. 100 SQ. FT. MORE AREA	10. 200 SQ. FT. MORE AREA	11. MAIN ENTRY FRONT	12. 2ND ENTRY BACK	13. ONE FRONT ENTRY	14. FOYER	15. PATIO DOOR	16. STAIRS BY ENTRY	17. SMALL LIVING RM.	18. 3 BEDROOMS	19. ½ BATH	20. DINING/KITCHEN AREA	21. "U" SHAPED KITCHEN	22. "L" SHAPED KITCHEN	23. PANTRY	24. PLAIN CPBD. DOORS	25. EAT-IN KITCHEN	26. KIT. STORAGE COMPLETE	27. UPGRADED SOUNDPRF'G.	28. WALLS PAINTED	29. CARPET FLR'G.	30. LINO FLR'G. ONLY	31. UPGRADED INSULATION
1. PLAIN FACADE																		○													
2. "EL" SHAPED UNIT	○		○	○		○		○				○	○	○			○	○	○		○	○			○	○	○	○	○	○	○
3. BI-LEVEL STYLE	○	○				○		○				○	○	○	○		○	○	○		○	○			○	○	○	○	○	○	○
4. TWO-STOREY STYLE	○					○		○					○				○	○	○		○	○			○	○	○	○	○	○	○
5. BUNGALOW STYLE	○					○							○				○	○	○		○	○			○	○	○		○		○
6. IDENTICAL SIDES	○												○				○	○	○		○	○			○	○	○		○		○
7. 25 FT. SET-BACK	○	○	○	○		○		○					○	○	○		○	○	○		○	○			○	○	○	○	○	○	○
8. 20 FT. UNIT WIDTH	○					○							○				○	○	○		○	○			○	○	○		○		○
9. 100 SQ. FT. LESS AREA	○	○	○	○	○	○	○	○				○	○	○	○	○	○	○	○		○	○	○	○	○	○	○	○	○	○	○
10. 200 SQ. FT. LESS AREA	○	○	○	○	○	○	○	○				○	○	○	○	○	○	○	○		○	○		○	○	○	○	○	○	○	○
11. MAIN ENTRY SIDE	○	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
12. 2ND ENTRY SIDE	○		○			○		○					○				○	○	○		○	○			○	○	○	○	○	○	○
13. TWO FRONT ENTRIES	○																	○	○		○	○			○	○	○				○
14. NO FOYER	○		○			○		○					○				○	○	○		○	○			○	○	○	○	○	○	○
15. HINGED DOOR	○		○	○		○		○				○	○	○			○	○	○		○	○			○	○	○	○	○	○	○
16. STAIRS CENTRAL	○	○	○	○		○		○				○	○	○	○		○	○	○		○	○			○	○	○	○	○	○	○
17. LARGE LIVING RM.	○												○					○	○		○	○			○	○	○				○
18. 2 BEDROOMS																															
19. NO ½ BATH	○																	○													
20. DINING/LIVING AREA	○	○	○	○	○	○	○	○		○		○	○	○	○	○	○	○	○		○	○	○	○	○	○	○	○	○	○	○
21. "L" SHAPED KITCHEN	○		○					○					○				○	○	○						○	○	○	○	○	○	○
22. "I" SHAPED KITCHEN	○																	○	○												○
23. OVERHEAD CPBDS.	○	○	○	○	○	○	○	○				○	○	○	○	○	○	○	○		○	○		○	○	○	○	○	○	○	○
24. STYLED CPBD. DOORS	○	○	○	○		○		○				○	○	○	○		○	○	○		○	○			○	○	○	○	○	○	○
25. NO EAT-IN KITCHEN	○																	○	○		○										○
26. KIT. STORAGE UNCOMP.	○																	○	○		○				○						○
27. STD. SOUNDPROOFING	○																	○	○		○	○			○						○
28. NO PAINT	○					○							○				○	○	○		○	○			○	○	○		○		○
29. LINO FLOORING ONLY	○					○							○				○	○	○		○	○			○	○	○				○
30. NO FLOORING	○												○				○	○	○		○	○			○	○	○				○
31. STD. INSULATION	○																	○	○												

FIGURE 6.1 PREFERENCE TRADE-OFF MATRIX:
SEMI-DETACHED BUYERS

LEGEND: ○ INCREASED PREFERENCE FOR ATTRIBUTE ALONG THE TOP OFFSETS
DECREASED PREFERENCE FOR ATTRIBUTE DOWN THE SIDE

NOTE: 1. STYLE:
- DECREASING PREFERENCE FROM SPLIT-LEVEL
- INCREASING PREFERENCE FROM BUNGALOW

2. KITCHEN LAYOUT:
- DECREASING PREFERENCE FROM "U" SHAPE
- INCREASING PREFERENCE FROM "I" SHAPE

3. FLOORING:
- DECREASING PREFERENCE FROM COMPLETE FLOORING
- INCREASING PREFERENCE FROM NO FLOORING

as opposed to two attached bungalows or two attached two-storeys.

Preferences were also increased by the use of only one entry in the facade treatment of the two units. This tends to suggest that semi-detached buyers prefer to differentiate units by style instead of two separate front entries. Overall, the preference for one entry on the facade is more important than the mix of styles.

- unit style - a split-level style is most preferred by semi-detached buyers. Howver, unit style does not have a major impact on buyer preferences. The decrease in preference resulting from a bi-level style is very slight and most buyers would accept two-storey and bungalow styles in order to have mixed styles in attached units.

The evaluation of buyer preferences in external design attributes of semi-detached units also included the following attributes:

- unit width - the width of the unit was associated with parking location. Preference is increased with a wider 25 foot unit width and rear lane access to backyard parking instead of a narrower unit which allows side drive parking. Unit width and parking location are less important to preferences than attributes associated with facade appearance.
- front yard setback - a 15 foot setback is generally preferred by semi-detached buyers over a 25 foot setback which decreases the amount of backyard space. A large front yard setback would, although, be preferred if this meant that desired facade features or unit width preferences could be attained.

- entry locations - despite the importance the number of front entries has on preference, the location of the main entry in a particular unit has no effect on buyer preferences. Location of the second entry is much more important. Preferences for the second entry location are increased by a back entry instead of a side entry location.
- unit shape and area - a rectangular shaped unit is somewhat preferred to a smaller "EL" shaped unit. The effect on preferences of this variation is relatively minor. Trade-offs in unit area for cost savings also have a relatively minor effect on semi-detached buyer preferences. As a group, semi-detached buyers are indifferent to the cost savings resulting from a 100 square foot reduction in unit area. A 200 square foot reduction tends to decrease preferences slightly.

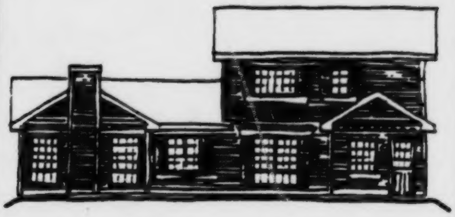
Facade and appearance-related attributes are the most important in terms of buyer preferences and can be traded off for variations in other external design attributes. Some of these variations are shown in Figure 6.2.

6.2 Trade-offs in Internal Design Attributes: Semi-detached Buyers

Unit attributes considered in the evaluation of semi-detached buyer preferences for internal design attributes were essentially the same as those used in the evaluation of single-detached buyer preferences. The effect of variations in these attributes on semi-detached buyer preferences was also quite similar. As was the case with most single-detached buyer types, number of bedrooms, bath and kitchen layout and design have the greatest impact on preferences: i.e.

FIGURE 6.2 PREFERRED EXTERNAL DESIGN ATTRIBUTES: SEMI-DETACHED BUYERS [see text for details]

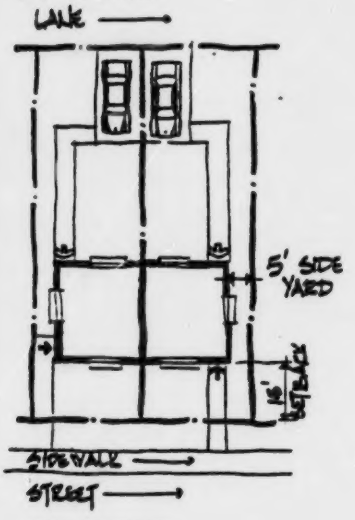
- FACADE TREATMENT & STYLE



- MOST PREFERRED
- SPLIT-LEVEL/TWO-STOREY COMBO
- FANCY FACADE
- ONE FRONT ENTRY

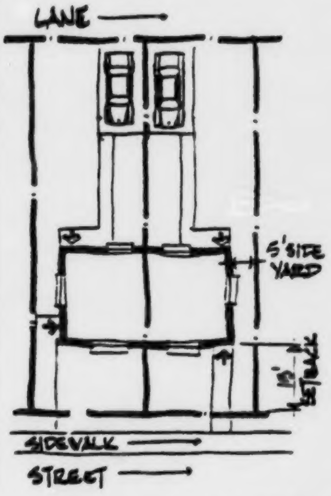
- UNIT AREA

[A] $0 SAVING


LANE →
5' SIDE YARD
15' SETBACK
SIDEWALK →
STREET →

- MOST PREFERRED

[B] $2000 SAVING


LANE →
5' SIDE YARD
15' SETBACK
SIDEWALK →
STREET →

- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- IDENTICAL SIDES
- PLAIN FACADE
- AREA DIFFERENCE OF LESS THAN 100 SQ. FT.

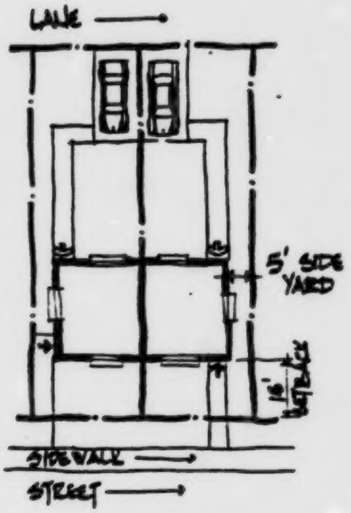
LEGEND. ENTRY ↑ 2ND ENTRY ⇧ LOT LINE — —.

FIGURE 6.2 cont'd. PREFERRED EXTERNAL DESIGN ATTRIBUTES: SEMI-DETACHED BUYERS

- UNIT SHAPE

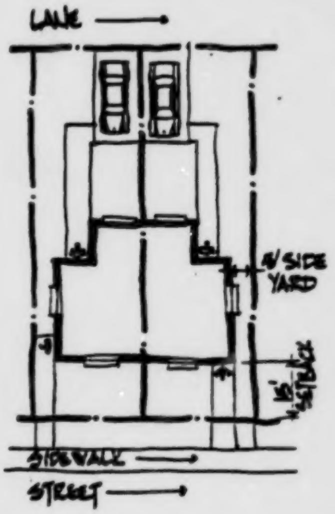
- FRONT YARD SETBACK

[A] RECTANGULAR


LANE →
5' SIDE YARD
15' SETBACK
SIDEWALK →
STREET →

- MOST PREFERRED

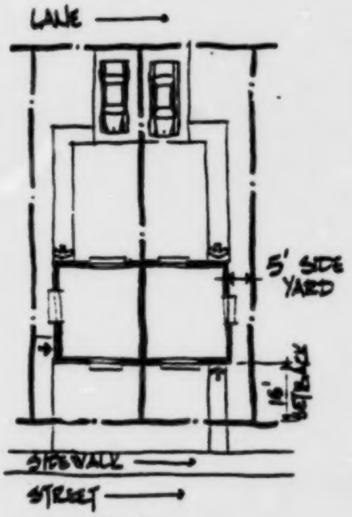
[B] "EL" SHAPE


LANE →
5' SIDE YARD
15' SETBACK
SIDEWALK →
STREET →

- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- PLAIN FACADE
- IDENTICAL SIDES

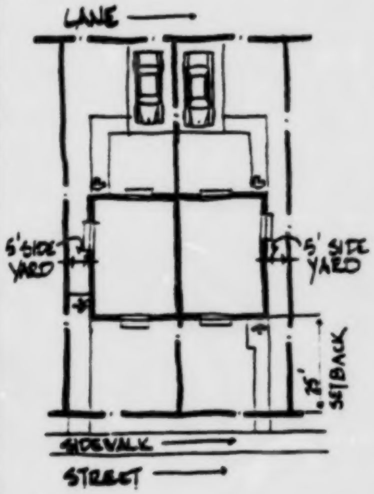
- FRONT YARD SET-BACK

[A] 15 FEET


LANE →
5' SIDE YARD
15' SETBACK
SIDEWALK →
STREET →

- MOST PREFERRED

[B] 25 FEET


LANE →
5' SIDE YARD
5' SIDE YARD
25' SETBACK
SIDEWALK →
STREET →

- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- PLAIN FACADE
- IDENTICAL SIDES

LEGEND. ENTRY ↑ 2ND ENTRY ⇑ WINDOW ⇒

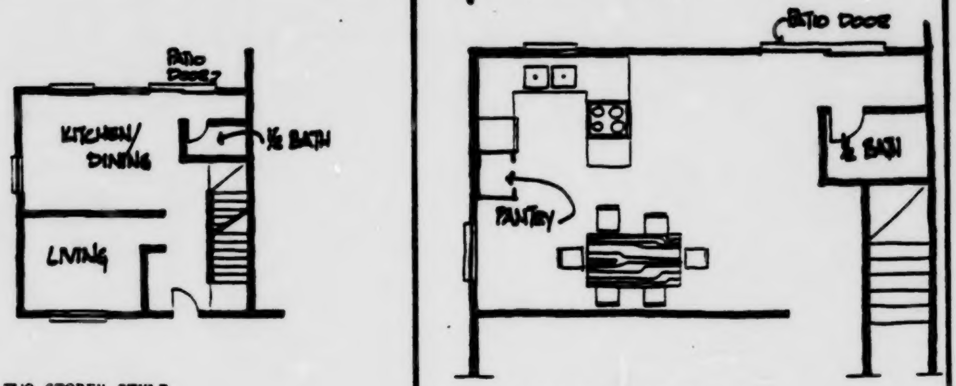
- number of bedrooms - a large master bedroom and two smaller secondary bedrooms are most preferred by semi-detached buyers. Bedroom number was the most important of all attributes included in the analysis.
- half bath - a half bath on the main floor also has a major impact on buyer preferences. Semi-detached buyers would trade off a half bath only if this meant getting a three bedroom instead of a two bedroom unit.
- kitchen layout - most semi-detached buyers prefer a "U" shaped kitchen counter layout to the other layout alternatives. Second choice for these buyers is an "L" shaped layout. The decline in preference with an "L" shape is however, not very great. Variations in living and dining area size can compensate for this decline.

  Generally, semi-detached buyers prefer a larger dining area integrated with the kitchen. Living room size can be traded off for increased dining area. Kitchen area should also be large enough for an eating area or breakfast nook.

  The other attributes associated with kitchen design are only of minor importance to buyer preferences. Semi-detached buyers can essentially be considered indifferent to whether storage is provided by a pantry or overhead cupboards or whether cupboard doors are plain or styled.

In comparison to the unit attributes just discussed, other attributes have a relatively minor effect on buyer preferences. As a group, semi-detached buyers prefer a main entry foyer, stairs located near the entry and a sliding patio door as a second entry. Trade-offs in these unit attributes can easily be made and allow a number of variations equally effective in increasing buyer preferences. Figure 6.3 shows one possible variation in main floor layout of a two-storey, semi-detached unit

FIGURE 6.3 **PREFERRED INTERNAL DESIGN ATTRIBUTES: SEMI-DETACHED BUYERS** [see text for details]


PATIO DOOR
KITCHEN/ DINING
½ BATH
LIVING
PATIO DOOR
½ BATH
PANTRY

- MAIN FLOOR LAYOUT
- TWO-STOREY STYLE
- OVERALL DIMENSIONS 25 FT. X 25 FT.
- 3 BEDROOMS, FULL BATH ON UPPER LEVEL
- 2ND ENTRY PATIO DOOR

- KITCHEN LAYOUT
- "U" SHAPED COUNTER
- KITCHEN/DINING AREA COMBO
- PLAIN CPBD. DOORS
- PANTRY STORAGE

and the kitchen layout. Both include preferred internal design attributes.

6.3 Trade-offs in Construction-Related Attributes: Semi-detached Buyers

Very important to the purchase decision of most semi-detached buyers are quality of soundproofing between units and quality of insulation. In the evaluation of buyer completion of non-structural items, upgrades in both these aspects were associated with increased costs. Upgraded insulation was valued at $1000 and upgraded soundproofing was offered in exchange for buyer completion of light fixtures and closet doors.

Semi-detached buyers would, for the most part, prefer to make the trade-offs required to upgrade insulation and soundproofing. Insulation upgrade tends to be the most important of the construction-related trade-offs examined. Buyers will trade completion of painting, flooring or even kitchen storage space if the associated cost savings are applied to upgraded insulation. Painting of interior walls and floor finishing can also be traded for upgraded soundproofing.

The preceding comments on trade-offs in buyer completion of non-structural items should not be interpreted as saying preferences will not decrease if items are left for buyer completion. Preferences will decrease, but upgrades in insulation and soundproofing can compensate for declines in preference in these areas.

6.4 Cost Saving Trade-offs: Semi-detached Buyers

For semi-detached buyers as a group, relatively few opportunities exist in terms of the design attributes included in the analysis, to reduce total unit costs without adversely affecting buyer preference for a unit. Increased costs resulting from facade treatment and upgrades in construction quality can be made up in unit area reductions and by leaving some non-structural items for buyer completion. However, cost savings that go beyond these aspects can be expected to result in at least some decline in preference.

One possible source for additional savings is in units with a smaller square footage. Additional reductions in unit area have only a relatively minor effect on preference decline for semi-detached buyers as a group. Undoubtedly, some semi-detached buyers would prefer the cost savings resulting from area reductions.

6.5 Implications for the Design of Semi-detached Units

Although the analysis of semi-detached buyer preferences was based on a relatively small number of respondents, a number of implications for the design of moderately priced semi-detached units can nevertheless be drawn from the analysis. Given the degree to which buyer preferences are affected by variations in some unit attributes, it seems reasonable to conclude that special consideration should be directed to these attributes: i.e.,

- external appearance - facade and mix of unit styles are very important to buyer preferences for a semi-detached unit. Preferences for a unit are greatest if attached units are not of the same style but the continuity of the design, facade treatment and entry location suggest one large unit instead of two smaller attached units. Considerable flexibility is possible in the mix of styles without adversely affecting buyer preferences greatly.
- internal attributes - semi-detached units should have at least three bedrooms, one and a half baths and a "U" shaped kitchen layout in order to maximize buyer preferences. Cost savings in these attributes is not possible without severely decreasing buyer preference for a unit.

- construction quality - workmanship and construction quality, especially in soundproofing and insulation, are extremely important to the purchase decision. Although improvements in these areas are not a matter of only additional costs, most buyers appear to be willing to make compromises in order to trade off extra costs associated with upgrading of quality.

The survey of semi-detached buyers did not include prospective buyers of such units. It is therefore somewhat difficult to be precise about unit sizes and price ranges in relation to preferences and trade-offs. Semi-detached units included in the study were typically priced in the low $70,000 range and were slightly under 1200 square feet in area. Implications for unit design should therefore apply to units with these price and size characteristics. Households who constitute potential purchasers of these units are also probably not much different from the recent purchasers included in the study. These households were typically made up of young married couples in their late 20s, slightly fewer than half with children and with average household incomes around $30,000. In other words, prospective semi-detached buyers are not much different from the average first-time buyer.

7.0 DESIGN TRADE-OFFS IN TOWNHOUSE UNITS

Recent purchasers of new, moderately priced townhouse units were classified into four homogeneous buyer types on the basis of their preferences for selected unit attributes: i.e.,

- TYPE I/sweat equity buyers - a major distinguishing characteristic of the 36% of recent buyers in this group is their preference for realizing cost savings in unit price resulting from buyer completion of non-structural aspects in the interior of the unit;
- TYPE II/standard product buyers - about a quarter of recent townhouse buyers fell into this group. Preferences of these buyers are generally decreased by alternatives deviating from product which has typically been built for the Calgary and Edmonton markets;
- TYPE III/privacy buyers - the 20% or so of respondents classified as privacy buyers are primarily distinguished from other buyer types by their preference for trade-offs which result in more privacy both inside and outside the unit;
- TYPE IV/minimum space buyers - the smallest group of recent townhouse buyers are characterized by their preference for realizing cost savings in unit price through the reduction of unit area. Only 18% of households were classified as TYPE IV buyers.

In this section, major differences amongst these townhouse buyer types are presented. Of particular interest will be trade-offs in unit attributes associated with external, internal and construction-related design requirements which improve preference or liveability or result in cost savings. Implications of these trade-offs for unit design are also discussed.

7.1 TYPE I/Sweat Equity Buyers

Slightly over one third of recent townhouse purchasers were classified as TYPE I or sweat equity buyers. A summary of the relationships between preferences in unit attributes and trade-offs between these attributes is presented in a preference trade-off matrix in Figure 7.1. Although external, internal and construction-related design attributes are presented together in the matrix, caution should be exercised in drawing conclusions from trade-offs between attributes in different major attribute sets. Additional assumptions must be made to compare trade-offs between sets.

7.1.1 trade-offs in external design attributes: sweat equity buyers

Preferences of sweat equity buyers are most affected by the following unit and project attributes: i.e.,

- type of attachment - how units are attached has a major impact on increasing or decreasing TYPE I buyer preferences. A side-by-side attachment which results in double aspect units is much preferred over a back-to-back attachment. Buyers in this group would be unwilling to trade off a side-by-side attachment for any of the other external design attributes.
- unit area - unit size or area also has an important effect on buyer preferences. The alternative presented in terms of unit area was a $4000 cost saving for a reduction of 200 square feet. TYPE I buyers would not make this trade-off unless there was no other way of obtaining a double aspect unit.

  Unit shape was also associated with a reduction in unit area. Buyers would again not prefer an "EL" shaped unit which increased backyard privacy for a reduction of 100 square feet in unit area.

The other unit and project attributes included in the set of external design attributes have less of an impact on TYPE I buyer preferences: i.e.,

- parking - grouped parking away from the unit was offered as a cost saving alternative to parking next

TRADE-OFFS INCREASING PREFERENCE:

TRADE-OFFS DECREASING PREFERENCE:	EXTERNAL DESIGN ATTRIBUTES							INTERNAL DESIGN ATTRIBUTES												CONSTRUCTION RELATED ATTRIBUTES					
	1. SIDE-BY-SIDE UNITS	2. 4 UNIT BLOCKS	3. PARKING BY UNIT	4. 400 SQ. FT. O.L.A.	5. RECTANGULAR UNIT	6. 5 FT. MORE WIDTH	7. 200 SQ. FT. MORE AREA	8. FOYER	9. HINGED DOOR	10. STAIRS BY ENTRY	11. LARGE LIVING RM.	12. 3 BEDROOMS	13. ½ BATH	14. DINING/LIVING AREA	15. "U" SHAPED KITCHEN	16. "L" SHAPED KITCHEN	17. OVERHEAD CPBDS.	18. PLAIN CPBD. DOORS	19. EAT-IN KITCHEN	20. KIT. STORAGE COMPLETE	21. $1000 OFF/NO PAINT	22. $1300 OFF/NO FLOORING	23. CARPET FLOORING	24. UPGRADED SOUNDPF'G.	25. UPGRADED INSULATION
1. BACK-TO-BACK UNITS												○	○												
2. 10 UNIT BLOCKS	○		○	○	○		○	○		○	○	○	○	○	○	○		○	○	○		○	○	○	○
3. GROUPED PARKING	○				○		○			○	○	○	○		○	○			○	○		○	○	○	○
4. 600 SQ. FT. O.L.A.	○		○		○		○			○	○	○	○		○	○			○	○		○	○	○	○
5. "EL" SHAPED UNIT	○						○					○	○		○					○		○	○	○	○
6. 5 FT. LESS WIDTH	○	○	○	○	○		○	○		○	○	○	○	○	○	○		○	○	○		○	○	○	○
7. 200 SQ. FT. LESS AREA	○											○	○									○		○	○
8. NO FOYER	○		○	○	○		○			○	○	○	○		○	○		○	○	○		○	○	○	○
9. PATIO DOOR	○	○	○	○	○		○	○		○	○	○	○	○	○	○		○	○	○		○	○	○	○
10. STAIRS CENTRAL	○				○		○				○	○	○		○	○				○		○	○	○	○
11. SMALL LIVING RM.	○						○					○	○		○					○		○	○	○	○
12. 2 BEDROOMS																									
13. NO ½ BATH																									
14. DINING/KITCHEN AREA	○		○		○		○			○	○	○	○		○	○		○	○	○		○	○	○	○
15. "L" SHAPED KITCHEN	○				○		○			○	○	○	○						○	○		○	○	○	○
16. "I" SHAPED KITCHEN	○						○					○	○									○	○	○	○
17. PANTRY	○	○	○	○	○		○	○		○	○	○	○	○	○	○		○	○	○		○	○	○	○
18. STYLED CPBD. DOORS	○				○		○			○	○	○	○		○	○			○	○		○	○	○	○
19. NO EAT-IN KITCHEN	○				○		○				○	○	○		○	○				○		○	○	○	○
20. KIT. STORAGE UNCOMP.	○						○					○	○		○							○	○	○	○
21. WALLS PAINTED	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		○	○	○	○
22. CARPET FLOORING	○						○				○	○	○		○									○	○
23. LINO FLOORING ONLY	○											○	○											○	○
24. STD. SOUNDPROOFING	○											○	○												
25. STD. INSULATION	○											○	○											○	

FIGURE 7.1 PREFERENCE TRADE-OFF MATRIX:
TYPE I/SWEAT EQUITY BUYERS

LEGEND: ○ INCREASED PREFERENCE FOR ATTRIBUTE ALONG THE TOP OFFSETS DECREASED PREFERENCE FOR ATTRIBUTE DOWN THE SIDE

NOTE: 1. KITCHEN LAYOUT:
- DECREASING PREFERENCE FROM "U" shape
- INCREASING PREFERENCE FROM "I" SHAPE

2. FLOORING
- DECREASING PREFERENCE FROM NO FLOORING
- INCREASING PREFERENCE FROM LINO ONLY

to the unit. Preferences tended to decline with the grouped parking alternative, suggesting buyers would rather forego the $500 cost saving and have their vehicles closer to home.

- outdoor living area - two options were presented to townhouse buyers with respect to the size of the backyard; a 400 square foot O.L.A. or a 600 square foot O.L.A. but no project tot lot. Preferences of TYPE I buyers are generally greater with less backyard space and more common open area but most would trade this attribute for preferred parking arrangements or unit size.
- number of attached units - 4 units in a block are preferred to 10 units and the associated $2500 cost saving. Block size has only a minor effect on buyer preferences and the decline in preference resulting from attaching units in larger blocks can be compensated for by trade-offs in other attributes. The actual width of the individual attached units has very little effect. TYPE I buyers are basically indifferent to a 15 or 20 foot unit width for units attached side-by-side.

A number of variations in preferred external design attributes for TYPE I buyers is shown in Figure 7.2.

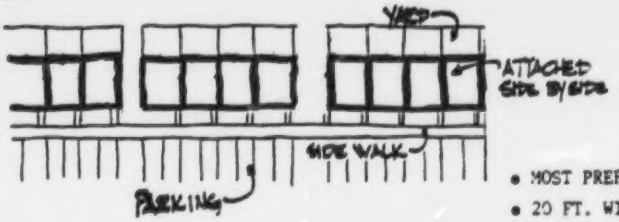
7.1.2 trade-offs in internal design attributes: sweat equity buyers

Two unit attributes included in the set of internal design attributes have a major impact on TYPE I buyer preferences for a townhouse unit; i.e.,

- number of bedrooms - almost all buyers in this group would trade a unit with two large bedrooms for one with a large master bedroom and two, smaller, secondary bedrooms. A two bedroom unit results in a major decline in buyer preferences.

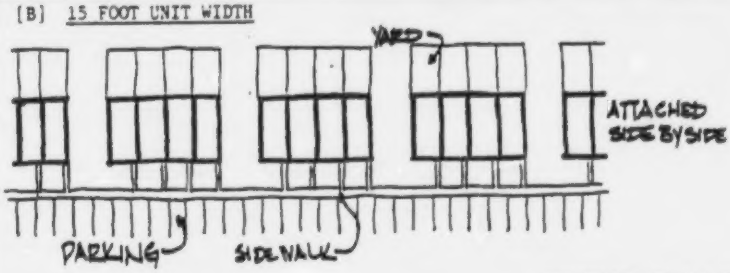
FIGURE 7.2 PREFERRED EXTERNAL DESIGN ATTRIBUTES:
TYPE I/SWEAT EQUITY BUYERS [see text for details]

[A]


YARD
ATTACHED SIDE BY SIDE
SIDE WALK
PARKING

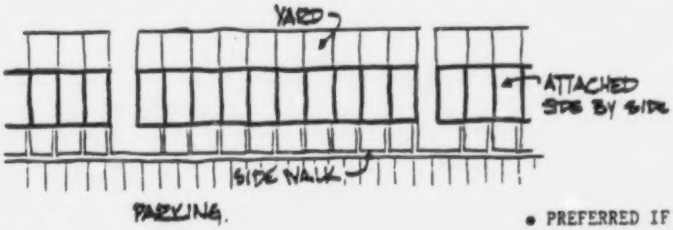
- MOST PREFERRED
- 20 FT. WIDTH
- 400 SQ. FT. O.L.A./PROJECT TOT LOT
- NO AREA REDUCTION

[B] 15 FOOT UNIT WIDTH


YARD
ATTACHED SIDE BY SIDE
PARKING
SIDEWALK

- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- NO TOT LOT/LESS COMMON AREA
- SMALLER UNIT SIZE
- HIGHER PRICE

[C] 10 UNITS ATTACHED


YARD
ATTACHED SIDE BY SIDE
SIDE WALK
PARKING.

- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- NO TOT LOT/LESS COMMON AREA
- SMALLER UNIT SIZE
- MORE THAN $2500 PRICE DIFFERENCE

LEGEND.

- half bath - the vast majority of buyers in this group would not trade off a half bath for a $1500 cost saving. Preference is definitely for one and a half baths in a two storey townhouse unit.

Sweat equity buyer preferences were not as much affected by variations in other internal design attributes. Overall, kitchen design and living room size tended to have more of an impact on preferences than the other remaining attributes in this set: i.e.,

- kitchen layout - a "U" shaped kitchen counter layout is preferred over an "L" shape or "in-line" counter layout. The difference in preference between a "U" shape and an "L" shape is, however, not that great. Variations in stairway location or living room size can compensate for the decline in preference for an "L" shape. More important than the difference between "U" and "L" shaped layouts is the provision of an eating area in the kitchen. Most TYPE I buyers prefer the main eating area to be integrated with the living room.

  The other aspects of kitchen design which were included in the analysis [storage location and cupboard door style] did not have a major effect on TYPE I buyer preferences. Preferences were increased slightly by overhead cupboard storage instead of a walk-in pantry and by plain instead of styled cupboard doors.
- living room size - a large living room is relatively important to TYPE I buyers. Most would prefer more area to be allocated to the living than the dining area. An entry hall or foyer should also be present in order to provide a transition space between the main entry and the living room.

- stairs and entries - preferences of TYPE I buyers are generally increased if stairs are located by an entry instead of centrally located in the unit. Preference for a hinged door is also slightly greater than for a sliding patio door.

Figure 7.3 shows the main floor layout of a two-storey townhouse unit and a more detailed kitchen layout which includes attributes most preferred by sweat equity buyers.

7.1.3 trade-offs in construction-related attributes: sweat equity buyers

Although TYPE I buyers, as a group, do not prefer to make cost saving trade-offs in external, project related or unit size attributes, preferences of these buyers are increased by cost saving trade-offs in buyer completion of non-structural aspects in the interior of the unit.

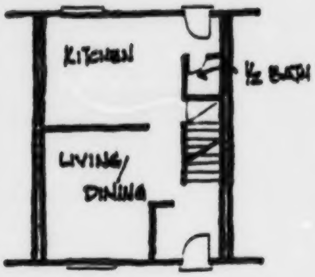
Quality of soundproofing between attached units is extremely important to TYPE I buyers. Upgraded soundproofing has a major effect on increasing buyer preferences even if this means trading off buyer completion of light fixtures and closet doors. Upgraded insulation has a similar effect on preferences. Increased costs of insulation can be traded off against buyer completion of painting.

Buyers in this group also prefer to realize cost savings from completing the flooring in their units. Preferences are greater with a $1300 cost saving from leaving floors at the subfloor stage than having carpeting of the quality typically used in moderately priced townhouses.

The effect of leaving walls unpainted for a $1000 cost saving is relatively minimal in terms of TYPE I buyer preferences. Buyers, as a whole, tend to be indifferent to this trade-off.

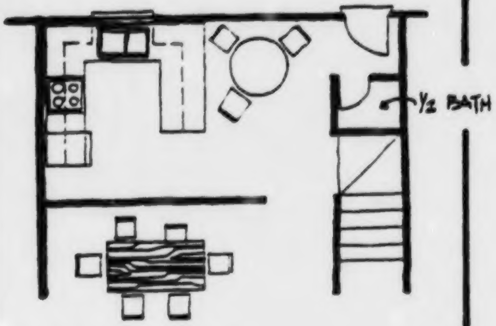
FIGURE 7.3 PREFERRED INTERNAL DESIGN ATTRIBUTES: TYPE I/SWEAT EQUITY BUYERS [see text for details]

- MAIN FLOOR LAYOUT


KITCHEN
½ BATH
LIVING/DINING

- TWO-STOREY STYLE
- OVERALL DIMENSIONS 20 BY 27 FT.
- 3 BDRMS., FULL BATH ON 2ND FLOOR

- KITCHEN LAYOUT



- "U" SHAPED COUNTER
- LIVING/DINING COMBO
- OVERHEAD CPBD. STORAGE
- PLAIN CPBD. DOORS

The only item sweat equity buyers do not prefer to complete themselves is the finishing of additional storage space or overhead kitchen cupboards for a $500 cost saving.

7.1.4 cost saving trade-offs: sweat equity buyers

Areas in which cost savings in townhouse units can be attained without reducing buyer preferences are primarily restricted to aspects of buyer completion as discussed above. Eliminating the half bath or reducing square footage can not be used for TYPE I buyers. Additional savings could perhaps also be realized by attaching more units in a block. The use of this source of cost saving depends very much on alternatives available to TYPE I buyers and whether other high preference attributes are included in the design.

If cost savings are limited to trade-offs in buyer completion, reductions in price are still relatively substantial. Based on estimates obtained from builders, savings in direct construction costs in completing to the subfloor stage only average $1,800 and leaving walls unpainted saves about $900. Additional costs incurred in upgrading insulation and soundproofing should be less than this amount.

7.2 TYPE II/Standard Product Buyers

The 25% or so of buyers classified as TYPE II buyers are characterized by their preference for project and unit attributes typical of townhouse product being built for the Calgary and Edmonton markets. Construction-related and internal unit attributes tend to be of more importance to these buyers' preferences than external unit or project attributes. Relatively few trade-offs can be made in preferred unit attributes without decreasing preferences. TYPE II buyer preferences and trade-offs in these preferences are summarized in Figure 7.4 and discussed below.

TRADE-OFFS INCREASING PREFERENCE:

TRADE-OFFS DECREASING PREFERENCES:	EXTERNAL DESIGN ATTRIBUTES							INTERNAL DESIGN ATTRIBUTES												CONSTRUCTION RELATED ATTRIBUTES					
	1. SIDE-BY-SIDE UNITS	2. 4 UNIT BLOCKS	3. PARKING BY UNIT	4. 400 SQ. FT. O.L.A.	5. RECTANGULAR UNIT	6. 5 FT. LESS WIDTH	7. 200 SQ. FT. MORE AREA	8. FOYER	9. PATIO DOOR	10. STAIRS CENTRAL	11. LARGE LIVING RM.	12. 3 BEDROOMS	13. ½ BATH	14. DINING/LIVING AREA	15. "U" SHAPED KITCHEN	16. "L" SHAPED KITCHEN	17. OVERHEAD CPBDS.	18. STYLED CPBD. DOORS	19. EAT-IN KITCHEN	20. KIT. STORAGE COMPLETE	21. WALLS PAINTED	22. CARPET FLR'G.	23. LINO FLR'G.	24. STD. SOUNDPROOFING	25. UPGRADED INSULATION
1. BACK-TO-BACK UNITS												○	○	○	○			○		○	○	○	○	○	○
2. 10 UNIT BLOCKS	○			○	○		○	○			○	○	○	○	○	○		○	○	○	○	○	○	○	○
3. GROUPED PARKING	○			○	○		○	○			○	○	○	○	○	○		○	○	○	○	○	○	○	○
4. 600 SQ. FT. O.L.A.	○				○		○	○			○	○	○	○	○	○		○	○	○	○	○	○	○	○
5. "EL" SHAPED UNIT	○						○	○			○	○	○	○	○	○		○	○	○	○	○	○	○	○
6. 5 FT. MORE WIDTH	○	○	○	○	○		○	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○	○
7. 200 SQ. FT. LESS AREA	○						○	○			○	○	○	○	○	○		○	○	○	○	○	○	○	○
8. NO FOYER	○										○	○	○	○	○	○		○	○	○	○	○	○	○	○
9. HINGED DOOR	○	○	○	○	○		○	○			○	○	○	○	○	○		○	○	○	○	○	○	○	○
10. STAIRS BY ENTRY	○	○	○	○	○		○	○			○	○	○	○	○	○		○	○	○	○	○	○	○	○
11. SMALL LIVING RM.	○							○				○	○	○	○	○		○	○	○	○	○	○	○	○
12. 2 BEDROOMS																					○	○	○		
13. NO ½ BATH																					○	○	○		
14. DINING/KITCHEN AREA												○	○	○	○			○		○	○	○	○	○	○
15. "L" SHAPED KITCHEN	○						○	○				○	○	○				○	○	○	○	○	○	○	○
16. "I" SHAPED KITCHEN												○	○	○						○	○	○	○	○	○
17. PANTRY	○	○	○	○	○		○	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○	○
18. PLAIN CPBD. DOORS												○	○							○	○	○	○	○	○
19. NO EAT-IN KITCHEN	○							○			○	○	○	○	○	○		○		○	○	○	○	○	○
20. KIT. STORAGE UNCOMP.												○	○								○	○	○	○	○
21. NO PAINT																						○			
22. LINO FLOR'G. ONLY																					○				
23. NO FLOORING																									
24. EXTRA SOUNDPROOFING												○	○								○	○	○		○
25. STD. INSULATION												○	○								○	○	○		

FIGURE 7.4 PREFERENCE TRADE-OFF MATRIX:

TYPE II/STANDARD PRODUCT BUYERS

LEGEND: ○ INCREASED PREFERENCE FOR ATTRIBUTE ALONG THE TOP
OFFSETS DECREASED PREFERENCE FOR ATTRIBUTE DOWN THE SIDE

NOTE: 1. KITCHEN LAYOUT:
- DECREASING PREFERENCE FROM "U" SHAPE
- INCREASING PREFERENCE FROM "I" SHAPE

2. FLOORING:
- DECREASING PREFERENCE FROM COMPLETE FLOORING
- INCREASING PREFERENCE FROM NO FLOORING

7.2.1 trade-offs in external design attributes: standard product buyers

Most important to TYPE II buyer preferences in terms of external unit and project attributes are those associated with type of attachment and unit area: i.e.,

- type of attachment - side-by-side attachment is much preferred over back-to-back attachment by TYPE II buyers. Preference is even greater if block size is limited to four units although the number of units per block has only a relatively minor effect on buyer preferences.
- unit area and shape - trade-offs which result in a smaller unit size will decrease TYPE II buyer preferences. A $4000 cost saving attained by reducing unit size by 200 sq. ft. or an "EL" shaped unit for 100 sq. ft. less are not preferred by standard product buyers. Only if preferred attachment type is available in no other way will a smaller unit size be acceptable.

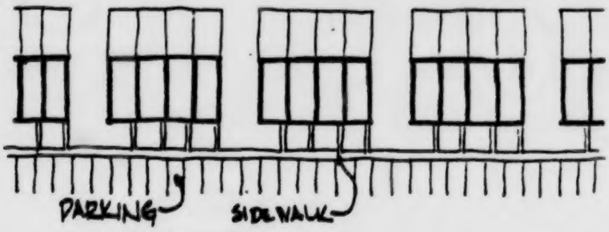
To maximize TYPE II buyer preferences, the other unit attributes included in the set of external design attributes should be as follows:

- outdoor living area - backyard size cannot be increased at the expense of common open area or the elimination of a tot lot for the project without decreasing buyer preferences.
- parking - the location of parking near the unit is preferred over grouped parking further away and the associated cost savings. The decline resulting from grouped parking is relatively minor and can be offset by more unit area.
- unit width - TYPE II buyers are relatively indifferent to unit width. Increasing unit width by 5 feet has only a marginal effect on buyer preferences.

Figure 7.5 shows a number of variations in external desi attributes preferred by TYPE II buyers.

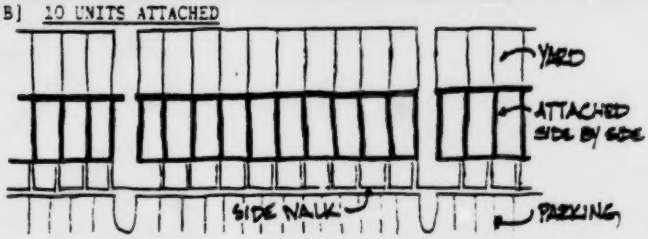
FIGURE 7.5 PREFERRED EXTERNAL DESIGN ATTRIBUTES:
TYPE II/STANDARD PRODUCT BUYERS [see text for details]

[A]


PARKING
SIDEWALK

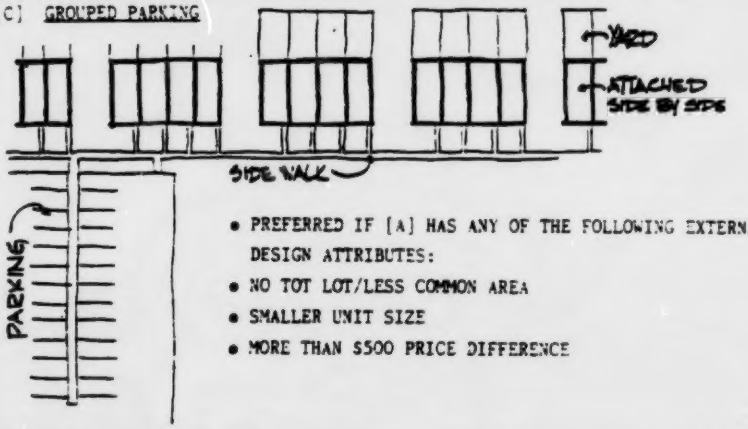
- MOST PREFERRED
- 15 FOOT WIDTH
- 400 SQ. FT. O.L.A./PROJECT TOT LOT
- NO AREA REDUCTION

[B] 10 UNITS ATTACHED


YARD
ATTACHED SIDE BY SIDE
SIDE WALK
PARKING

- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- NO TOT LOT/LESS COMMON AREA
- SMALLER UNIT SIZE
- MORE THAN $2500 PRICE DIFFERENCE

[C] GROUPED PARKING


YARD
ATTACHED SIDE BY SIDE
SIDE WALK
PARKING

- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- NO TOT LOT/LESS COMMON AREA
- SMALLER UNIT SIZE
- MORE THAN $500 PRICE DIFFERENCE

LEGEND.

7.2.2 trade-offs in internal design attributes: standard product buyers

Unit attributes related to internal design requirements tend to be much more important to TYPE II buyer preferences than external unit or project-related attributes. Of particular importance in terms of those attributes included in the set of internal design attributes are number of bedrooms, bathrooms and kitchen layout and design: i.e.,

- number of bedrooms - a three bedroom townhouse unit consisting of a large master bedroom and two secondary bedrooms is much preferred over two larger bedrooms only. A two bedroom unit results in a major decline in TYPE II buyer preferences.
- half bath - buyers in this group would not trade off a half bath for $1500 in cost savings or any other unit attributes.
- kitchen layout - preferences for kitchen layout are greatest with a "U" shaped counter. An "L" shaped layout is less preferred but will be accepted if this means getting a choice in eating area location. TYPE II buyers prefer a kitchen large enough to contain an eating area but the main dining area should be integrated with the living room.

  Whether kitchen storage is provided by overhead cupboards or a pantry does not make much difference to buyer preferences. Styled cupboard doors instead of plain doors should be used if preferences are to be increased.

Preferences of TYPE II buyers are also substantially affected by living room size and entry treatments. A larger living room is preferred at the expense of space that could be allocated to the dining area. A foyer separating the main entry from the living room has a major effect on increasing preferences. Of less importance to TYPE II buyer preferences are stairway location and second entry type. A central location is preferred for stairs and a sliding patio door is preferred as a second entry. However, variations in these attributes have only a minor effect on TYPE II buyer preferences.

The main floor layout and kitchen layout which both incorporate attributes most preferred by standard product buyers are shown in Figure 7.6.

7.2.3 trade-offs in construction-related attributes: standard product buyers

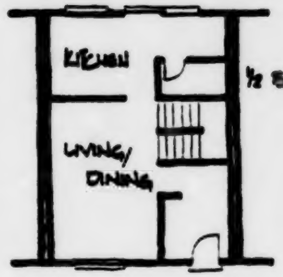
Although construction quality and workmanship are just as important to TYPE II buyers as they are to other townhouse buyer groups, trade-offs in buyer completion of non-structural aspects for cost savings cannot be made without major declines in buyer preference. Even upgraded soundproofing in exchange for buyer completion of light fixtures and closet doors is not preferred by TYPE II buyers. It would therefore appear that for standard product buyers, marginal increases in unit price for quality improvements are more preferred than trade-offs which maintain unit price and result in a less than complete townhouse.

7.2.4 cost saving trade-offs: standard product buyes

None of the cost saving trade-offs included in the analysis can be applied to TYPE II buyers without decreasing buyer preference. Trade-offs involving buyer completion or reductions in unit area are definitely not for this buyer type. Some savings can perhaps be realized by attaching more units in a block or by grouping parking. The negative effect such variations will have on TYPE II buyer preference depends very much on the inclusion of compensating trade-offs in the design of the project and individual units and what other alternatives are available in the market place.

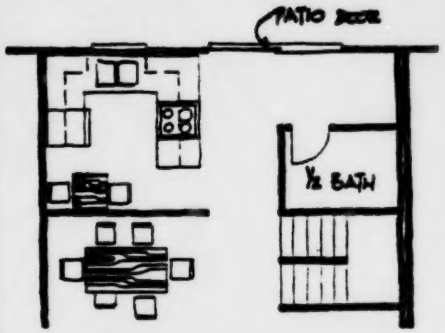
FIGURE 7.6 PREFERRED INTERNAL DESIGN ATTRIBUTES:
TYPE II/STANDARD PRODUCT BUYERS [see text for details]

- MAIN FLOOR LAYOUT


KITCHEN
½ BATH
LIVING/
DINING

- TWO-STOREY STYLE
- OVERALL DIMENSIONS 20 BY 27 FT.
- 3 BDRMS., FULL BATH ON 2ND FLOOR

- KITCHEN LAYOUT


PATIO DOOR
½ BATH

- "U" SHAPED COUNTER
- LIVING/DINING COMBO
- OVERHEAD CPBD. STORAGE
- STYLED CPBD. DOORS

7.3 TYPE III/Privacy Buyers

About one in five of the recent townhouse purchasers surveyed were classified as privacy buyers. In some respects, particularly in terms of trade-offs in buyer completion for cost savings, preferences of this group of buyers are similar to those of TYPE I buyers. A major distinction between TYPE III buyers and other buyer types is, however, their high preference for unit attributes which tend to increase backyard privacy. Preferences and trade-offs in unit attributes are summarized in the preference trade-off matrix shown in Figure 7.7 for TYPE III buyers.

7.3.1 trade-offs in external design attributes: privacy buyers

Recent townhouse buyers classified as privacy buyers were the only ones who as a group preferred a back-to-back attachment to a side-by-side attachment. If such an arrangement is used for buyers in this group, the number of units per block must be limited to four if preferences are to be maximized.

Privacy buyers are also different from other townhouse buyer groups in their preferences for unit attributes associated with outdoor privacy and parking arrangements: i.e.,

- unit shape - "EL" shaped units grouped in a back-to-back arrangement in clusters of four are most preferred by privacy buyers. The trade-off for an "EL" shape is preferred even if unit area is reduced by 100 square feet to compensate for increased construction costs. Additional trade-offs in unit area for cost savings will however, decrease preferences of these buyers.
- unit width - a back-to-back attachment results in a wider unit than a side-by-side attachment. TYPE III buyers prefer a wider unit of 25 feet and preferences decline with any reductions from this width.
- open living area - preferences of TYPE III buyers are for more area in the backyard at the expense of common

TRADE-OFFS INCREASING PREFERENCE:

TRADE-OFFS DECREASING PREFERENCES:	EXTERNAL DESIGN ATTRIBUTES							INTERNAL DESIGN ATTRIBUTES												CONSTRUCTION RELATED ATTRIBUTES					
	1. BACK-TO-BACK UNITS	2. 4 UNIT BLOCKS	3. GROUPED PARKING	4. 600 SQ. FT. O.L.A.	5. "EL" SHAPED UNIT	6. 5 FT. MORE WIDTH	7. 200 SQ. FT. MORE AREA	8. FOYER	9. HINGED DOOR	10. STAIRS BY ENTRY	11. SMALL LIVING RM.	12. 3 BEDROOMS	13. ½ BATH	14. DINING/LIVING AREA	15. "U" SHAPED KITCHEN	16. "L" SHAPED KITCHEN	17. PANTRY	18. STYLED CPBD. DOORS	19. EAT-IN KITCHEN	20. KIT. STORAGE COMPLETE	21. $1000 OFF/NO PAINT	22. $1300 OFF/NO FLR'G.	23. LINO FLR'G. ONLY	24. UPGRADED SOUNDPF'G.	25. UPGRADED INSULATION
1. SIDE-BY-SIDE UNITS		○										○	○		○	○		○	○	○		○		○	○
2. 10 UNIT BLOCKS												○	○		○	○		○	○	○		○		○	○
3. PARKING BY UNIT	○	○			○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
4. 400 SQ. FT. O.L.A.	○	○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
5. RECTANGULAR SHAPE	○	○										○	○		○	○		○	○	○		○		○	○
6. 5 FT. LESS WIDTH	○	○			○		○	○	○	○		○	○	○	○	○		○	○	○	○	○		○	○
7. 200 SQ. FT. LESS AREA	○	○			○				○			○	○		○	○		○	○	○		○		○	○
8. NO FOYER	○	○			○				○			○	○		○	○		○	○	○		○		○	○
9. PATIO DOOR	○	○			○		○	○				○	○		○	○		○	○	○		○		○	○
10. STAIRS CENTRAL	○	○			○		○	○	○			○	○		○	○		○	○	○		○		○	○
11. LARGE LIVING RM.	○	○			○	○	○	○	○	○		○	○	○	○	○		○	○	○	○	○	○	○	○
12. 2 BEDROOMS															○	○									
13. NO ½ BATH															○	○									
14. DINING/KITCHEN AREA	○	○			○		○	○	○	○		○	○		○	○		○	○	○	○	○		○	○
15. "L" SHAPED KITCHEN																									
16. "I" SHAPED KITCHEN																									
17. OVERHEAD CPBDS.	○	○		○	○	○	○	○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○	○
18. PLAIN CPBD. DOORS												○	○		○	○						○			
19. NO EAT-IN KITCHEN												○	○		○	○		○				○			
20. KIT. STORAGE UNCOMP.	○	○										○	○		○	○		○	○			○		○	○
21. WALLS PAINTED	○	○			○		○	○	○	○		○	○		○	○		○	○	○		○		○	○
22. CARPET FLR'G.												○	○		○	○									
23. LINO FLR'G. ONLY												○	○		○	○		○							
24. STD. SOUNDPROOFING												○	○		○	○		○	○			○			○
25. STD. INSULATION												○	○		○	○		○	○			○			

FIGURE 7.7 PREFERENCE TRADE-OFF MATRIX: TYPE III/PRIVACY BUYERS

LEGEND: ○ INCREASED PREFERENCE FOR ATTRIBUTE ALONG TOP OFFSETS DECREASED PREFERENCE FOR ATTRIBUTE DOWN SIDE

NOTE: 1. KITCHEN LAYOUT:
- DECREASING PREFERENCE FROM "U" SHAPE
- INCREASING PREFERENCE FROM "I" SHAPE

2. FLOORING:
- DECREASING PREFERENCE FROM NO FLOORING
- INCREASING PREFERENCE FROM COMPLETE FLOORING

open area or a project tot lot. The effect of variances in O.L.A. are, though, relatively minor and declines in preference resulting from a smaller O.L.A. can be compensated for by most other preferred external design attributes.

- parking - privacy buyers are also the only group of buyers who prefer the cost savings of grouped parking to having parking closer to the unit. Again, the degree of preference for grouped parking is relatively minor.

Preferred external design attributes and variations in O.L.A. size and parking arrangements are shown for TYPE III buyers in Figure 7.8.

7.3.2 trade-offs in internal design attributes: privacy buyers

Design attributes related to kitchen layout and design and number of bedrooms and baths are most important to TYPE III buyer preferences: i.e.,

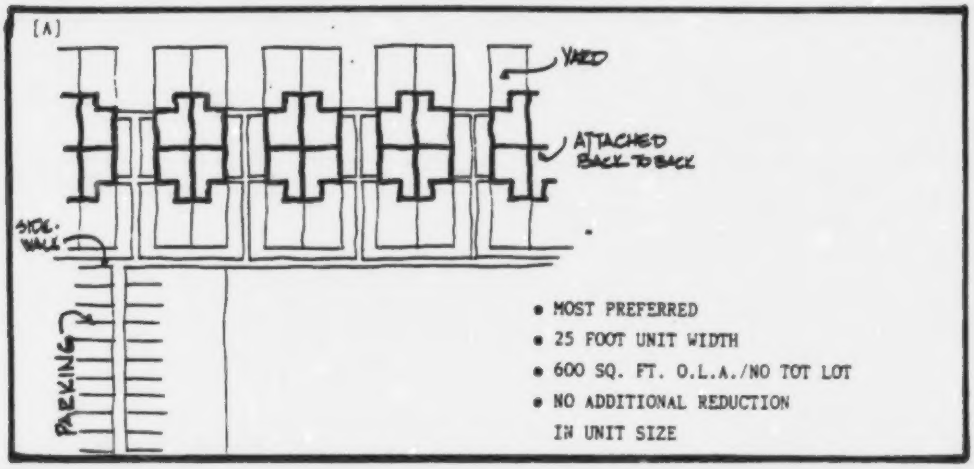
- kitchen layout - a "U" shaped kitchen counter layout is generally preferred over other alternatives by most recent townhouse buyers. Such a layout is even more important to privacy buyer preferences. The decline in preference resulting from an "L" shape or "I" shape is such for TYPE III buyers that no trade-offs are possible in terms of the other unit attributes included in the analysis.

  The kitchen area should also be designed to have place for an eating area. Of less importance is the location of the main dining area. Buyer preferences are increased if the dining area is integrated with the living room but other arrangements are acceptable if this means getting a unit with preferred entry and stairway location, for example.

  TYPE III buyers, as a group, tend to prefer pantry storage in the kitchen to overhead cupboards. This attribute has only a minor effect on preference,

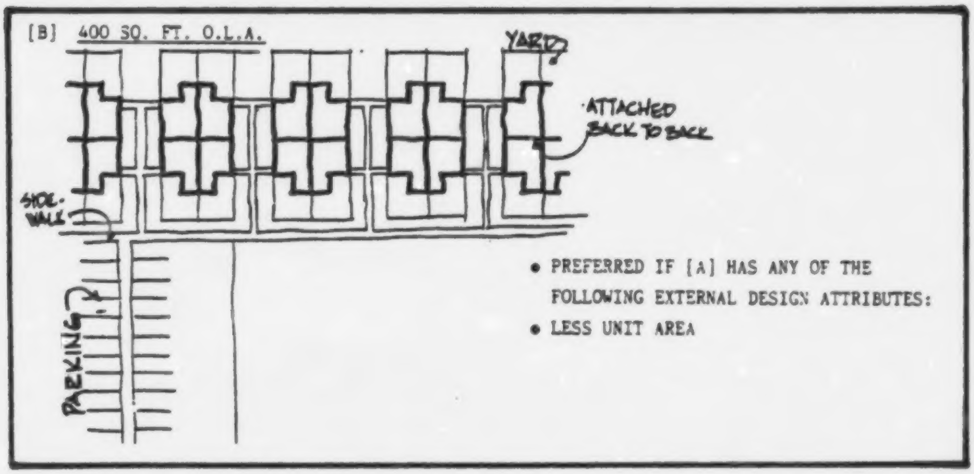
FIGURE 7.8 PREFERRED EXTERNAL DESIGN ATTRIBUTES:
TYPE III/PRIVACY BUYERS [see text for details]

[A]


YARD
ATTACHED BACK TO BACK
SIDE-WALK
PARKING

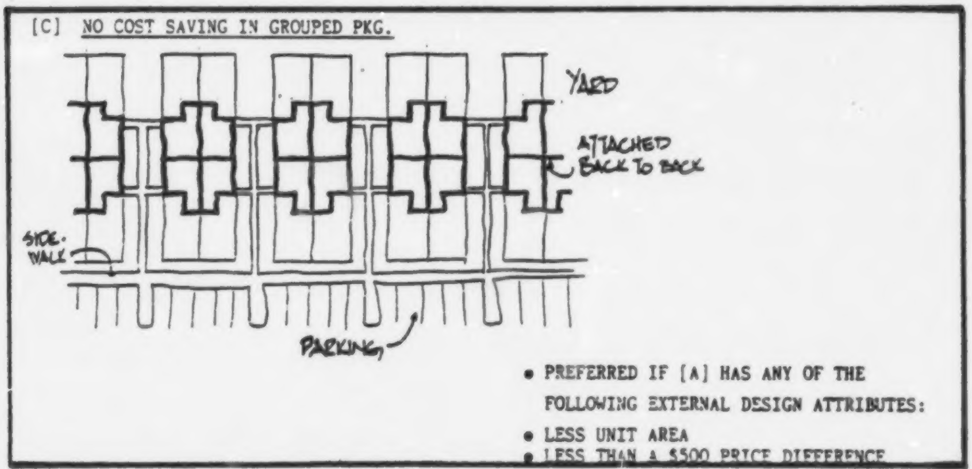
- MOST PREFERRED
- 25 FOOT UNIT WIDTH
- 600 SQ. FT. O.L.A./NO TOT LOT
- NO ADDITIONAL REDUCTION IN UNIT SIZE

[B] 400 SQ. FT. O.L.A.


YARD
ATTACHED BACK TO BACK
SIDE-WALK
PARKING

- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- LESS UNIT AREA

[C] NO COST SAVING IN GROUPED PKG.


YARD
ATTACHED BACK TO BACK
SIDE-WALK
PARKING

- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- LESS UNIT AREA
- LESS THAN A $500 PRICE DIFFERENCE

LEGEND.

so quite a few trade-offs can be made. Much more important than storage type are styled cupboard doors instead of plain kitchen cupboard doors.

- number of bedrooms - a 3 bedroom unit is much preferred over a 2 bedroom unit by TYPE III buyers. The third bedroom would however be traded off by most buyers in this group for preferred kitchen layout and design attributes.
- half bath - number of baths were assumed to have approximately the same importance to townhouse buyer preferences as number of bedrooms. The presence of a half bath on the main floor of a two-storey townhouse unit,therefore, also has a major effect on TYPE III buyer preferences. Only kitchen layout is relatively more important.

The remaining unit attributes included in the set of internal design attributes are also relatively important to privacy buyer preferences: i.e.,

- entry treatment - preferences of TYPE III buyers are increased by the use of a hinged door as a second entry instead of a sliding patio door. A foyer should be used to separate the main entry from the living room.
- stairway location - stairs should be located near the entry in order to increase TYPE III buyer preferences.
- living room size - most buyers in this group prefer a slightly larger dining area at the expense of living room size. This trade-off is only of relatively minor importance to preferences.

Alternative arrangements in floor plans or kitchen layouts are relatively limited for TYPE III buyers. Internal design attributes included in the analysis are all relatively important to buyer preferences. Trade-offs not including preferred attributes tend to have a major negative impact on TYPE III buyer preferences. Figure 7.8 shows the main floor layout and kitchen layout which includes internal unit attributes preferred by privacy buyers.

7.3.3 trade-offs in construction-related attributes: privacy buyers

TYPE III buyers are quite similar to TYPE I or sweat equity buyers in their preference for trade-offs in buyer completion of non-structural construction-related aspects for cost savings or quality improvements in other areas. Preferences are greatest with the following trade-offs:

- flooring - buyer completion of flooring and the associated cost savings are preferred to either linoleum flooring only or the type of carpeting usually used in townhouses.
- wall surfaces - buyer completion of painting and associated cost savings are preferred to having walls already painted.
- soundproofing - upgraded soundproofing in exchange for buyer completion of light fixtures and doors is preferred by privacy buyers to standard soundproofing.
- insulation - upgraded insulation at extra cost is also preferred to standard insulation.

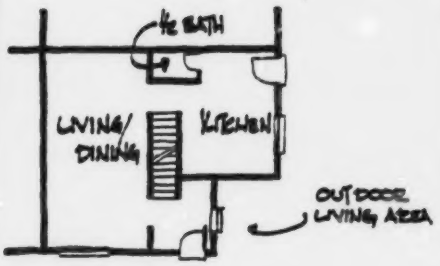
Only in the completion of kitchen storage space do privacy buyers not prefer trade-offs for cost savings.

7.3.4 cost saving trade-offs: privacy buyers

Opportunities exist in a number of areas to reduce unit costs without adversely affecting privacy buyer preferences. Preferences for grouped parking and back-to-back attachment can reduce unit price by an estimated $1000. Additional savings in buyer completion could be as much as $2,800. Some of these savings should be used to upgrade soundproofing and insulation. Net reductions in

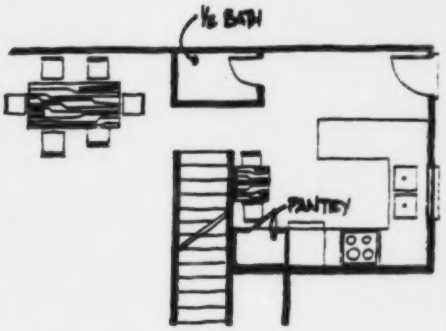
FIGURE 7.9 PREFERRED INTERNAL DESIGN ATTRIBUTES:
TYPE III/PRIVACY BUYERS [see text for details]

- MAIN FLOOR LAYOUT


½ BATH
LIVING/ DINING
KITCHEN
OUTDOOR LIVING AREA

- TWO-STOREY STYLE
- BACK-TO-BACK ATTACHMENT
- OVERALL DIMENSIONS
  25 FT. BY 22 FT.
- 3 BDRMS., FULL BATH ON 2ND FLOOR

- KITCHEN LAYOUT


½ BATH
PANTRY

- "U" SHAPED KITCHEN
- LIVING/DINING COMBO
- PANTRY STORAGE
- STYLED CPBD. DOORS

unit price after these quality improvements are estimated to be around $2,000 per unit.

7.4 TYPE IV/Minimum Space buyers

The smallest of the buyer types arising from the analysis of recent townhouse buyer preferences were TYPE IV or minimum space buyers. Less than one in five [18%] of recent purchasers were classified as belonging to this buyer type. Buyers in this group were the only ones who preferred cost saving trade-offs in unit size or area.

Preferences of TYPE IV buyers and trade-offs in these preferences are summarized in Figure 7.10 and discussed below.

7.4.1 trade-offs in external design attributes: minimum space buyers

The following unit attributes included in the set of external design attributes had the greatest effect on TYPE IV buyer preferences: i.e.,

- type of attachment - a side-by-side attachment is much preferred over a back-to-back attachment by TYPE IV buyers. None of the external attributes analysed could compensate for the decline in preference resulting from a back-to-back attachment.

  The number of units attached in a block and the width of individual units is of relatively minor importance to TYPE IV buyers. A $2500 cost saving trade-off from having 10 units per block instead of four units results in only a small decline in preference. The effect in reducing unit width to 15 feet from 20 feet has even less of a negative effect on preferences.

- outdoor living area - trade-offs in common open area or a project tot lot are generally preferred by TYPE IV buyers if this results in more backyard space for individual townhouse units. In their preference for a larger O.L.A., TYPE IV buyers are similar to privacy buyers. Also, similar to privacy buyers, an "EL" shaped unit is preferred to a rectangular shape, even at the expense of 100 square feet of unit area.

TRADE-OFFS INCREASING PREFERENCE:

TRADE-OFFS DECREASING PREFERENCE:	EXTERNAL DESIGN ATTRIBUTES							INTERNAL DESIGN ATTRIBUTES												CONSTRUCTION RELATED ATTRIBUTES					
	1. SIDE-BY-SIDE UNITS	2. 4 UNIT BLOCKS	3. PARKING BY UNIT	4. 600 SQ. FT. O.L.A.	5. "EL" SHAPED UNIT	6. 5 FT. MORE WIDTH	7. $4000/AREA SAVING	8. NO FOYER	9. HINGED DOOR	10. STAIRS BY ENTRY	11. LARGE LIVING RM.	12. 3 BEDROOMS	13. ½ BATH	14. DINING/KITCHEN AREA	15. "U" SHAPED KITCHEN	16. "L" SHAPED KITCHEN	17. OVERHEAD CPBDS.	18. PLAIN CPBD. DOORS	19. NO EAT-IN KITCHEN	20. $500/CPBD. SAVING	21. WALLS PAINTED	22. CARPET FLOORING	23. LINO FLR'G. ONLY	24. LIGHTS/DOORS INSTALLED	25. UPGRADED INSULATION
1. BACK-TO-BACK UNITS																					○	○	○	○	
2. 10 UNIT BLOCKS	○		○	○	○		○	○	○	○	○	○	○	○	○		○	○	○	○	○	○	○	○	○
3. GROUPED PARKING	○			○			○					○	○		○			○	○		○	○	○	○	○
4. 400 SQ. FT. O.L.A.	○											○	○		○			○	○		○	○	○	○	○
5. RECTANGULAR SHAPE	○		○	○			○			○		○	○		○			○	○	○	○	○	○	○	○
6. 5 FT. LESS WIDTH	○	○	○	○	○		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
7. NO $4000 SAVING	○			○								○	○		○			○	○		○	○	○	○	○
8. FOYER	○		○	○	○		○		○	○	○	○	○	○	○		○	○	○	○	○	○	○	○	○
9. PATIO DOOR	○		○	○	○		○			○	○	○	○		○			○	○	○	○	○	○	○	○
10. STAIRS CENTRAL	○		○	○			○					○	○		○			○	○		○	○	○	○	○
11. SMALL LIVING RM.	○		○	○	○		○			○		○	○		○			○	○	○	○	○	○	○	○
12. 2 BEDROOMS																					○	○	○	○	
13. NO ½ BATH																					○	○	○	○	
14. DINING/LIVING AREA	○		○	○	○		○		○	○	○	○	○		○			○	○	○	○	○	○	○	○
15. "L" SHAPED KITCHEN	○											○	○						○		○	○	○	○	
16. "I" SHAPED KITCHEN	○											○	○								○	○	○	○	
17. PANTRY	○		○	○	○		○		○	○	○	○	○		○			○	○	○	○	○	○	○	○
18. STYLED CPBD. DOORS	○											○	○		○				○		○	○	○	○	
19. EAT-IN KITCHEN	○											○	○								○	○	○	○	
20. NO $500 CPBD. SAVING	○		○	○			○					○	○		○			○	○		○	○	○	○	○
21. NO PAINT																									
22. LINO FLR'G. ONLY																					○			○	
23. NO FLOORING																					○			○	
24. EXTRA SOUNDPF'G.																					○				
25. STD. INSULATION	○											○	○		○			○	○		○	○	○	○	

FIGURE 7.10 PREFERENCE TRADE-OFF MATRIX:
TYPE IV/MINIMUM SPACE BUYERS

LEGEND: ○ INCREASING PREFERENCE FOR ATTRIBUTE ALONG TOP
OFFSETS DECREASED PREFERENCE FOR ATTRIBUTE DOWN SIDE

NOTE: 1. KITCHEN LAYOUT:
- DECREASING PREFERENCE FROM "U" SHAPE
- INCREASING PREFERENCE FROM "I" SHAPE

2. FLOORING:
- DECREASING PREFERENCE FROM COMPLETE FLOORING
- INCREASING PREFERENCE FROM NO FLOORING

- parking - parking by the unit is preffered to cost savings attainable by grouping parking further from the unit. Preferred parking arrangements would however be traded for more backyard space if no other alternatives were available.
- unit area - the preference for trade-offs in unit size or area for cost savings is what most distinguishes TYPE IV buyers from the other townhouse buyer types. The only external unit attributes more important to preferences than such cost savings are type of attachment and backyard size.

Most external design attributes have a fairly substantial effect on TYPE IV buyer preferences. This tends to restrict design alternatives which do not unduly decrease preferences to variations in block size and unit width. Figure 7.11 shows these alternatives for minimum space buyers.

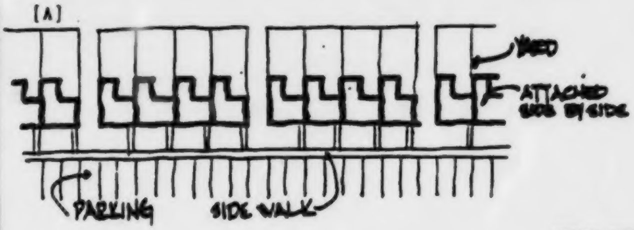
7.4.2 trade-offs in internal design attributes: minimum space buyers

The internal design attributes included in the analysis tended to be of relatively less importance to TYPE IV buyer preferences than to other buyer type preferences. The most important attributes in terms of preferences were still number of bedrooms, baths and kitchen layout but the effect of variances in these attributes on TYPE IV buyer preferences is considerably less pronounced: i.e.,

- number of bedrooms - typical of most new home buyers, a three bedroom townhouse unit is much preferred over a two bedroom unit by TYPE IV buyers.
- half bath - in order to maximize TYPE IV buyer preferences, a half bath should be located in the main floor if the full bath is on another level. A half bath is valued more than a $1500 cost saving.
- kitchen layout - a "U" shaped counter layout is much preferred over alternative layouts. To increase TYPE IV buyer preferences in other aspects of kitchen design,

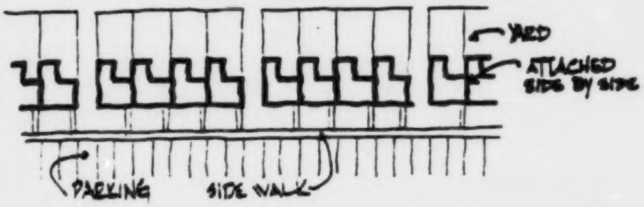
FIGURE 7.11 PREFERRED EXTERNAL DESIGN ATTRIBUTES:
TYPE IV/MINIMUM SPACE BUYERS [see text for details]

[A]


YARD
ATTACHED SIDE BY SIDE
PARKING
SIDE WALK

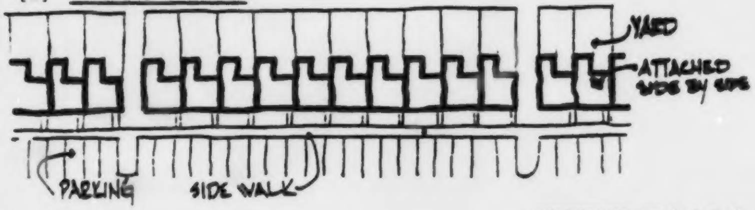
- MOST PREFERRED
- $4000 COST SAVING/200 SQ. FT. LESS AREA
- 600 SQ. FT. O.L.A./NO TOT LOT
- 20 FOOT UNIT WIDTH

[B] 15 FOOT UNIT WIDTH


YARD
ATTACHED SIDE BY SIDE
PARKING
SIDE WALK

- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- LESS OUTDOOR LIVING AREA
- LESS THAN $4000 COST SAVING

[C] 10 UNITS ATTACHED


YARD
ATTACHED SIDE BY SIDE
PARKING
SIDE WALK

- PREFERRED IF [A] HAS ANY OF THE FOLLOWING EXTERNAL DESIGN ATTRIBUTES:
- LESS O.L.A.
- MORE THAN $2500 PRICE DIFFERENCE

LEGEND.

overhead kitchen cupboard storage should be used instead of a pantry and cupboard doors should be plain instead of styled. Preferences for eating area location are a bit mixed.

Generally, preferences of TYPE IV buyers as a group are to have no eating area in the kitchen. The location of the main dining area has relatively little effect on TYPE IV buyer preferences, but a slight decline in preference results from integrating the dining and living areas. More living room area is generally preferred to more dining area, therefore, the best compromise may be to have only one small dining area relatively separate from both kitchen and living room.

Variances in other internal design attributes are of relatively less importance to TYPE IV buyers. Stairways located next to entries are preferred to a more central location in the unit. An entry hall or main entry foyer is not preferred. A larger living room is more important. Sliding patio doors are also not preferred. The second entry type should be a hinged door in order to increase TYPE IV buyer preferences.

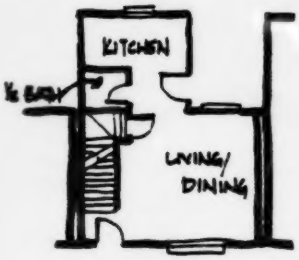
Figure 7.12 shows a main floor and kitchen layout which include attributes resulting in increased preferences for TYPE IV buyers.

7.4.3 trade-offs in construction-related attributes: minimum space buyers

TYPE IV buyers tend not to prefer cost saving trade-offs which involve buyer completion of non-structural construction related items. Leaving painting or floor finishing for buyer completion has a major negative affect on preferences. Upgraded soundproofing will also not be preferred if this means leaving out light fixtures and closet doors. Upgraded insulation is however worth an extra $1000.

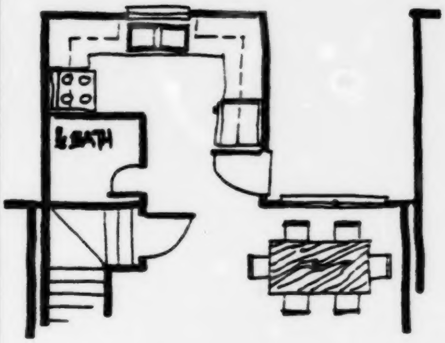
FIGURE 7.12 PREFERRED INTERNAL DESIGN ATTRIBUTES:
TYPE IV/MINIMUM SPACE BUYERS [see text for details]

- MAIN FLOOR LAYOUT


KITCHEN
½ BATH
LIVING/
DINING

- TWO-STOREY STYLE
- OVERALL DIMENSIONS 20 FT. BY 23 FT.
- 3 BDRMS., FULL BATH ON 2ND FLOOR

- KITCHEN LAYOUT



- "U" SHAPED KITCHEN
- OVERHEAD CPBD. STORAGE
- PLAIN CPBD. DOORS
- SEPARATE EATING AREA

The only construction related item which TYPE IV buyers would trade off is buyer completion of overhead cupboards for a $500 cost saving. The effect of this trade-off on buyer preferences is rather small. Therefore, it may be that such a trade-off has a relatively limited appeal to TYPE IV buyers or that kitchen storage is not terribly important to TYPE IV buyer preferences.

7.4.4 cost saving trade-offs: minimum space buyers

Trade-offs in unit area for cost savings on total unit price are much more acceptable to TYPE IV buyers than other cost saving trade-offs. Additional savings may also be realized in using larger unit blocks which reduces TYPE IV buyer preferences by only a marginal amount. Together, trade-offs in these two aspects are estimated to result in $6,500 in direct construction cost savings which can be used to upgrade construction quality in other areas or to reduce total unit price.

7.5 Implications for the Design of Townhouse Units

The relevance of this discussion of design trade-offs in moderately priced townhouse units to the design and marketing of such housing can perhaps be best considered in terms of those design attributes which should be included, irrespective of buyer type and those attributes which maximize preferences of specific buyer types.

The least variation amongst the four townhouse buyer types tends to be in preferences for internal design attributes. Kitchen layout, number of bedrooms and baths are of major importance to the preferences of all buyer types; i.e.,

- a "U" shaped kitchen with a window in the kitchen work area and an eating area in the kitchen tends to be the most preferred arrangement by townhouse buyers;
- a large master bedroom and two secondary bedrooms should be used to maximize preferences;

- a half bath near the second entry, if the main bath is on another level, is extremely important to buyer preferences.

Preferences in other internal design attributes are also fairly consistent across buyer types. Deviations from the following attributes tend to have a relatively minor effect on preferences; i.e.,

- a main entry hall or foyer,
- stairs located next to an entry instead of centrally in the unit,
- main dining area integrated with the living room,
- a larger living room area at the expense of the dining area.

The major differences amongst the four buyer types are in their preferences for external unit and project attributes and aspects of buyer completion. For the most part, these differences can be seen as differences in preferences for cost saving trade-offs: i.e.,

- type of attachment - a side-by-side attachment is preferred by most buyer types. Use of a back-to-back attachment will only appeal to TYPE III or privacy buyers and then only if double aspect units are used and the number of attached units is limited to four. Other buyer types also prefer blocks of four units to larger groupings but not to the same degree as privacy buyers.

- parking - TYPE III buyers are again different from other buyer types in their preference for cost savings attained by grouping parking away from the unit. The preference for parking next to the unit on the part of the other buyer types is again not very strong and cost saving trade-offs are possible.

- unit area - only TYPE IV buyers will trade off unit area for cost savings. This group of buyers was the smallest of any group and also had the lowest average household incomes.

In terms of external unit or project attributes, townhouse buyers can be considered as either preferring the standard type of product built for Edmonton and Calgary markets or preferring variations which result in more privacy for the individual unit. Privacy oriented buyers were primarily classified into TYPE III and IV buyers; about 40% of townhouse buyers. These buyers tended to prefer "EL" shaped units and larger backyards. Increased backyard area was presented as a trade-off for less common area or a project tot lot. Given present regulatory requirements for townhouse projects such a trade-off may not be possible for a family oriented project. Other trade-offs in grouped parking or unit width may however still allow some increase in backyard size.

The other major area of differentiation amongst townhouse buyers is in cost saving trade-offs for buyer completion of non-structural aspects of unit construction. Buyers in both TYPE I and TYPE III preferred to complete the painting of interior walls, floor finishing, light fixtures and closet doors for either reductions in unit price or improvements in soundproofing, insulation or other aspects of construction quality. Such trade-offs, although they are used in single-detached units, have not been extensively tried in townhousing. Constraints on such trade-offs in townhousing appear to be more of an administrative than regulatory nature.

As a general rule of thumb, moderately priced townhousing should be about $10,000 less than comparably sized, single-detached housing to be attractive to prospective purchasers in the Calgary and Edmonton markets. A major problem for builders of townhouse units is that this price difference has been impossible to achieve during the past few years and still result in a profit. Implementing some of the cost saving trade-offs discussed for townhousing may ameloriate this situation somewhat. Trade-offs which can reduce per unit costs are possible for about 75% of townhouse buyers and can range from $2500 per unit by attaching more units in a block to $4000 by trade-offs in buyer completion or unit area.

APPENDIX

A.1 QUESTIONNAIRE SAMPLES AND STATISTICAL SUMMARIES

A.1.1 SINGLE-DETACHED UNIT QUESTIONNAIRE

STRATEGICS
Strategic Development Services Limited

D 827 Fifth Avenue NW
Calgary, Alberta T2N 0R5
(403) 283-6927

9302–109A Avenue
Edmonton, Alberta
Canada, T5H 1E8
(403) 429-0044

[illegible]

Your assistance in this important study is greatly appreciated. Please use the envelope provided to mail your completed questionnaire back to us. Postage has already been provided. All answers will be kept in the strictest confidence.

It is important that you return your completed questionnaire by [illegible]

1

How would you describe your home buying intentions at the present time? (CHECK ONE ONLY)

☐ I plan to buy a home within the next six months
☐ I plan to buy a home within the next year or so
☐ I plan to buy within the next few years

[illegible]

☐ [illegible]
☐ [illegible]
☐ [illegible]
☐ [illegible]
☐ Other ____________________

[illegible]

☐ [illegible]
☐ [illegible]
☐ [illegible]
☐ Other ____________________

[illegible] > ☐

[illegible]

[illegible] > ☐

[illegible] > ☐

[illegible] > ☐,☐

[illegible] > ☐☐☐

[illegible] present time

1/16

Q.7 If you were deciding whether to buy a particular new single-detached home, how important would the following things be? Please rate the importance of these things using the scale from 1 to 7. A "1" means not at all important or that this aspect of a new home would not enter into your decision to buy or not buy. A "7" means absolutely crucial or that if this aspect was not as you wanted it, you would not buy that home.

	HOW IMPORTANT?						
	1	2	3	4	5	6	7
	not at all important	of very little importance	of little importance	fairly important	very important	very great importance	absolutely crucial
a. the style of the home, that is, whether it's a bungalow, bi-level, 2-storey, etc. (CIRCLE NUMBER)	1	2	3	4	5	6	7
b. the size of the backyard	1	2	3	4	5	6	7
c. the size of the front yard	1	2	3	4	5	6	7
d. side yard space on both sides of the house	1	2	3	4	5	6	7
e. parking access, that is, whether you use a rear lane or have access from the street to park your car on your lot	1	2	3	4	5	6	7
f. location of the main entry, that is, whether it's at the front or side of the house	1	2	3	4	5	6	7
g. location of the 2nd entry, that is, whether it's at the side or back	1	2	3	4	5	6	7
h. windows on all four sides of the house	1	2	3	4	5	6	7
i. the total size (square footage) of the house	1	2	3	4	5	6	7
j. being able to save money on the total price of the house	1	2	3	4	5	6	7
k. features on the front of the house such as a bay window, chimney chase, or brick accent materials, etc.	1	2	3	4	5	6	7
l. features on the front of the house such as decorative shutters, window grills, or other decorative materials	1	2	3	4	5	6	7
m. the width of the home, that is if it's [illegible] or [illegible] feet wide, for example	1	2	3	4	5	6	7
n. the width of the lot, that is if it's 30 or 35 feet wide, for example.	1	2	3	4	5	6	7
	not at all important	of very little importance	of little importance	fairly important	very important	very great importance	absolutely crucial

INSTRUCTIONS FOR RANKING QUESTIONS

A number of questions in this questionnaire ask you to rank in order of your preference some different designs and layouts of a home. The alternatives are in most cases described by a simple diagram and a verbal description.

The alternatives only focus on a limited number of characteristics of a home. In order to rank the alternatives, assume that the things not shown or described about the home are to your liking. For example, if the alternatives show different kitchen layouts, assume that the rest of the home, its location, backyard space, style of home, etc. are to your liking.

Some symbols may be used in the diagrams. These are always explained at the bottom of the page.

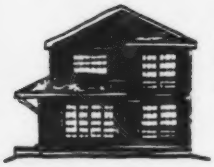
You may find it easiest to rank the alternatives in order of your preference if you first go through and check off those you like and those you don't like and then go back and rank the ones you liked and rank the ones you didn't like. If for example, there were 8 alternative or different homes to rank, you may find 3 that you like and 5 that you don't like. The three that you liked, you would rank using the numbers 1, 2, 3 where "1" would be the most liked, "2" the second most liked and "3" the third most liked. The five that you didn't like would be ranked using the numbers 4, 5, 6, 7, 8 where a "4" would be given to the fourth most liked alternative and so on. The very least liked alternative would be ranked "8".

PLEASE NOTE: Where the size of the home is shown in square feet, this only includes the developed, liveable area of a home. It does not include the basement, although all the alternative homes do have basements.

The cost savings associated with an alternative should be considered as an amount that would be taken off the maximum price you could afford to pay for a new home.

Try to avoid giving more than one alternative the same rank.

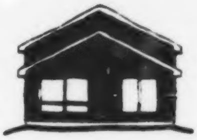
Q.8 The diagrams on this page show different variations in facade treatment or how a house appears from the street. The homes also differ in style, size and cost savings. Please rank the 8 different homes from most liked to least liked using the numbers from 1 through 8 where "1" means the most liked and "8" means the least liked. Try to avoid giving more than one house the same rank. Assume that the interior arrangement and other things not shown are to your liking. Consider the cost savings as an amount which would be taken off the maximum price you could afford.



- house 25 feet wide
- 900 square foot 2-storey
- $4000 cost saving

☐ 1. like
☐ 2. don't like

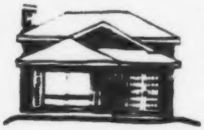
RANK
(CIRCLE) 1 2 3 4 5 6 7 8



- house 25 feet wide
- 1100 square foot split level
- $1000 cost saving

☐ 1. like
☐ 2. don't like

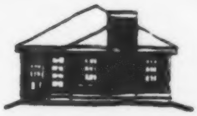
RANK
(CIRCLE) 1 2 3 4 5 6 7 8



- house 25 feet wide
- 900 square foot split level
- $2000 cost saving

☐ 1. like
☐ 2. don't like

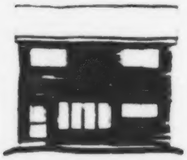
RANK
(CIRCLE) 1 2 3 4 5 6 7 8



- house 25 feet wide
- 1000 square foot bungalow
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

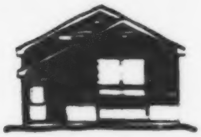
RANK
(CIRCLE) 1 2 3 4 5 6 7 8



- house 25 feet wide
- 1000 square foot 2-storey
- $3000 cost saving

☐ 1. like
☐ 2. don't like

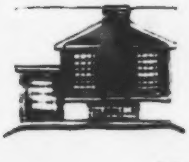
RANK
(CIRCLE) 1 2 3 4 5 6 7 8



- house 25 feet wide
- 900 square foot bi-level
- $5000 cost saving

☐ 1. like
☐ 2. don't like

RANK
(CIRCLE) 1 2 3 4 5 6 7 8



- house 25 feet wide
- 900 square foot bi-level
- $2000 cost saving

☐ 1. like
☐ 2. don't like

RANK
(CIRCLE) 1 2 3 4 5 6 7 8

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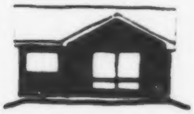

- house 25 feet wide
- 1100 square foot bungalow
- $1000 cost saving

☐ 1. like
☐ 2. don't like

RANK
(CIRCLE) 1 2 3 4 5 6 7 8

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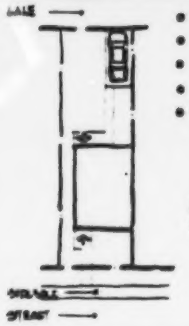
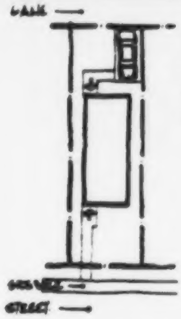
Shown below are 8 different single-detached homes which vary in shape, parking arrangement, size, placement on a lot and cost savings. Please rank the different homes in order of your preference using the numbers from "1" to "8", where "1" means the most liked and "8" means the least liked. Try to avoid giving more than one home the same rank. Assume that the things not shown about the home, the style, appearance, location, interior arrangements, etc. are to your liking. Consider the cost savings as an amount which would be taken off the maximum price you could afford.



- lot size 30 by 100 feet
- house 25 feet wide
- front yard 15 feet deep
- house size 900 square feet
- $4000 cost saving

☐1. like
☐2. don't like

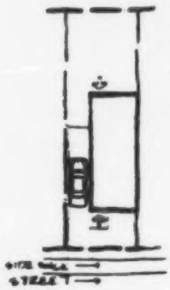
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- house 20 feet wide
- front yard 25 feet deep
- house size 1100 square feet
- $ 0 cost saving

☐1. like
☐2. don't like

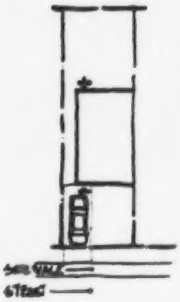
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- house 20 feet wide
- frontyard 15 feet deep
- house size 1000 square feet
- $2000 cost saving

☐1. like
☐2. don't like

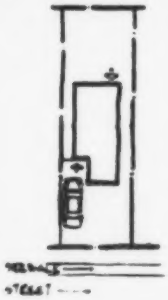
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- house 25 feet wide
- front yard 25 feet deep
- house size 1000 square feet
- $2000 cost saving

☐1. like
☐2. don't like

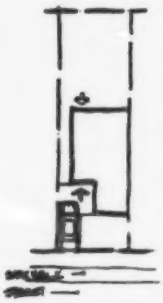
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- house 20 feet wide
- front yard 25 feet deep
- house size 800 square feet
- $4000 cost saving

☐1. like
☐2. don't like

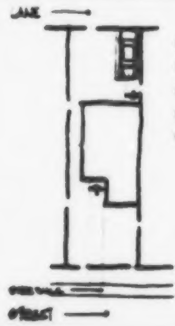
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- house 25 feet wide
- front yard 15 feet deep
- house size 1000 square feet
- $ 0 cost saving

☐1. like
☐2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

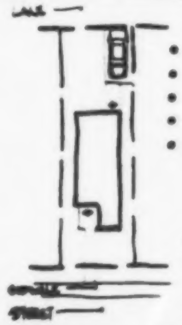


- lot size 30 by 100 feet
- house 25 feet wide
- front yard 25 feet deep
- house size 900 square feet
- $4000 cost saving

☐1. like
☐2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

1/54



- lot size 30 by 100 feet
- house 20 feet wide
- front yard 15 feet deep
- house size 900 square feet
- $2000 cost saving

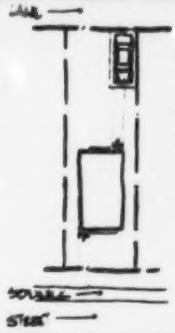
☐1. like
☐2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

1/62

LEGEND: MAIN ENTRY ⇧ SECONDARY ENTRY ⇧ LOT LINE — —

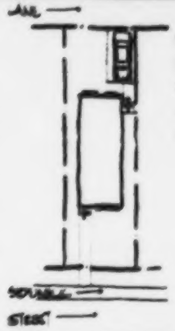
The 8 layouts in this page show variations of style of housing, window locations, front yard setback, house width, size of house and cost saving. Please rank the 8 homes from most liked to least liked using the numbers from 1 through 8, where "1" means most liked and "8" means the least liked. Try to avoid giving more than one house the same rank. Assume that the interior arrangement of the homes and other things not shown are to your liking. Consider the cost savings as an amount which would be taken off the maximum price you could afford.



- lot size 30 by 100 feet
- 900 square foot bi-level
- house 20 feet wide
- front yard 15 feet deep
- $4000 cost saving

☐ 1. like
☐ 2. don't like

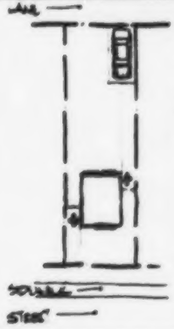
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- 1100 square foot bungalow
- house 20 feet wide
- front yard 25 feet deep
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

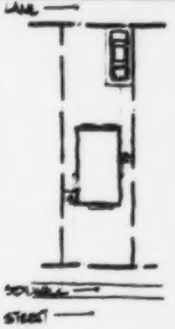
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- 900 square foot 2-storey
- house 20 feet wide
- front yard 15 feet deep
- $4000 cost saving

☐ 1. like
☐ 2. don't like

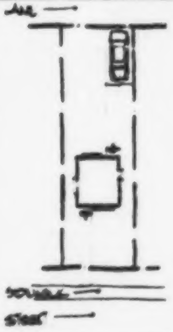
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- 900 square foot bi-level
- house 20 feet wide
- front yard 25 feet deep
- $4000 cost saving

☐ 1. like
☐ 2. don't like

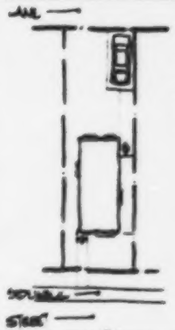
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- 900 square foot 2-storey
- house 20 feet wide
- front yard 25 feet deep
- $4000 cost saving

☐ 1. like
☐ 2. don't like

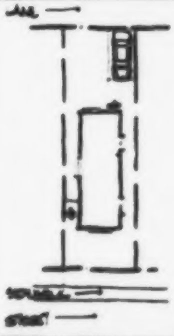
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- 1100 square foot split level
- house 20 feet wide
- front yard 15 feet deep
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

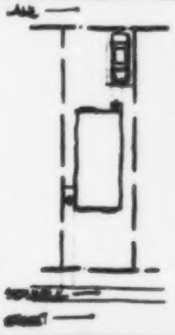


- lot size 30 by 100 feet
- 1100 square foot bungalow
- house 20 feet wide
- front yard 15 feet deep
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

1/70



- lot size 30 by 100 feet
- 1100 square foot split level
- house 20 feet wide
- front yard 25 feet deep
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

1/78

LEGEND: MAIN ENTRY ⇧ SECONDARY ENTRY ⇧ LOT LINE —·— WINDOW

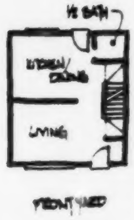
CUP ①-④ 2

Q.[illegible] How important would the following aspects of the interior layout or arrangement of a home be to you, if you were considering buying a new home? Please rate the importance of the items listed below using the scale from 1 to 7, where "1" means not at all important or that this aspect of a new home would not enter into your decision to buy or not buy and where "7" means absolutely crucial or that if this aspect was not to your liking, you would not buy that home.

HOW IMPORTANT?

	1	2	3	4	5	6	7
	not at all important	of very little importance	of little importance	fairly important	very important	very great importance	absolutely crucial
a. the size of the living room							
b. the size of the eating or dining area	1	2	3	4	5	6	7
c. the size of the master bedroom	1	2	3	4	5	6	7
d. the size of secondary bedrooms	1	2	3	4	5	6	7
e. the number of bedrooms	1	2	3	4	5	6	7
f. the amount of kitchen storage space	1	2	3	4	5	6	7
g. the layout of the kitchen ("L" shape, "U" shape, etc.)	1	2	3	4	5	6	7
h. a window in the kitchen work area	1	2	3	4	5	6	7
i. a window in the eating/dining area	1	2	3	4	5	6	7
j. a ½ bath on the main floor if a full bath was on another floor	1	2	3	4	5	6	7
k. the location of the stairway (near an entry or more centrally located)	1	2	3	4	5	6	7
l. an entrance hall or foyer off the main entry	1	2	3	4	5	6	7
m. a main entry leading directly to the living room	1	2	3	4	5	6	7
n. the location of the eating area (with the kitchen or a separate dining area)	1	2	3	4	5	6	7
o. whether the 2nd entry is a sliding patio door or a hinged door	1	2	3	4	5	6	7
p. the potential to develop the basement into a living or sleeping area	1	2	3	4	5	6	7
	not at all important	of very little importance	of little importance	fairly important	very important	very great importance	absolutely crucial

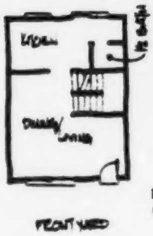
[illegible] The diagrams on this page show some variations in interior layout and design. Only the main floor is shown; bedrooms and a full bath would be on the second floor. Please rank the different layouts from most liked to least liked using the numbers from 1 through 8, where "1" means the most liked and "8" means the least liked. Try to avoid giving more than one layout the same rank. Assume that things not shown about the house are to your liking. Consider the cost savings to be an amount which would be taken off the maximum price you could afford.


½ BATH
KITCHEN/DINING
LIVING
FRONT YARD

- 900 square foot 2-storey
- house 20 feet wide
- ½ bath
- $4000 cost saving

☐ 1. like
☐ 2. don't like

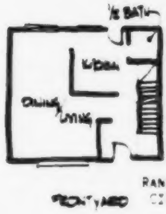
RANK (CIRCLE) 1 2 3 4 5 6 7 8


½ BATH
KITCHEN
DINING/LIVING
FRONT YARD

- 1100 square foot 2-storey
- house 20 feet wide
- ½ bath
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

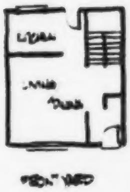
RANK (CIRCLE) 1 2 3 4 5 6 7 8


½ BATH
KITCHEN
DINING/LIVING
FRONT YARD

- 1100 square foot 2-storey
- house 25 feet wide
- ½ bath
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

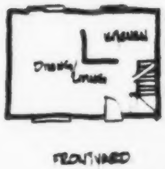
RANK (CIRCLE) 1 2 3 4 5 6 7 8


KITCHEN
LIVING/DINING
FRONT YARD

- 900 square foot 2-storey
- house 20 feet wide
- no ½ bath
- $5500 cost saving

☐ 1. like
☐ 2. don't like

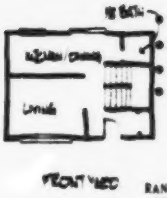
RANK (CIRCLE) 1 2 3 4 5 6 7 8


KITCHEN
DINING/LIVING
FRONT YARD

- 900 square foot 2-storey
- house 25 feet wide
- no ½ bath
- $5500 cost saving

☐ 1. like
☐ 2. don't like

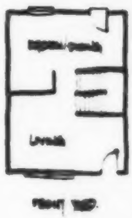
RANK (CIRCLE) 1 2 3 4 5 6 7 8


½ BATH
KITCHEN/DINING
LIVING
FRONT YARD

- 900 square foot 2-storey
- house 25 feet wide
- ½ bath
- $4000 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

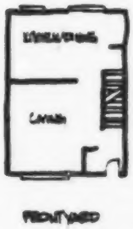

KITCHEN/DINING
LIVING
FRONT YARD

- 1100 square foot 2-storey
- house 20 feet wide
- no ½ bath
- $1500 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

2/29


KITCHEN/DINING
LIVING
FRONT YARD

- 1100 square foot 2-storey
- house 20 feet wide
- no ½ bath
- $1500 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

2/87

LEGEND: WINDOW —▭— DOOR —⌐— PATIO DOOR —▭—

[illegible]) Described below are 4 different homes that vary in terms of the space given to certain rooms. Please rank them from most liked to least liked using the numbers from 1 to 4, where "1" means the most liked and "4" means the least liked. Try to avoid giving more than one home the same rank.

DESCRIPTION

- 1100 square foot bungalow
- large living room (200 square feet)
- small eating/dining area (50 square feet)
- 2 large bedrooms (200 square feet each)

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4

- 1100 square foot 2-storey
- large living room (200 square feet)
- small eating/dining area (50 square feet)
- 1 large bedroom (200 square feet) and 2 small bedrooms (100 square feet each)

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4

- 1100 square foot bungalow
- small living room (150 square feet)
- large eating/dining area (100 square feet)
- 1 large bedroom (200 square feet) and 2 small bedrooms (100 square feet each)

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4

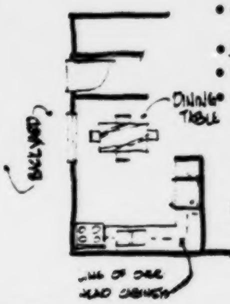
- 1100 square foot 2-storey
- small living room (150 square feet)
- large eating/dining area (100 square feet)
- 2 large bedrooms (200 square feet each)

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4

2/45

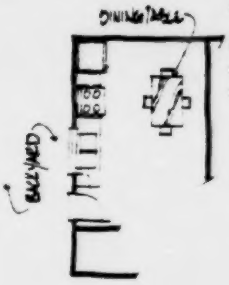
Q.14 The 8 diagrams on this page show different types of kitchen arrangements. The differences basically involve the layout of the work area, the location of the eating/dining area, whether storage space is provided by overhead cupboards or a pantry and whether the completion of that storage space is included in the price or done by the buyer at a saving of $50 in the price of the home. Please rank the different kitchen arrangements from most liked to least liked using the numbers from 1 through 8, where "1" means the most liked and "8" means the least liked. Try to avoid giving more than one arrangement the same rank. Assume that the other things not shown are to your liking.


BACKYARD
DINING TABLE
LINE OF OVER HEAD CABINETS

- overhead cupboards installed
- no pantry
- $5 cost saving
- styled cupboard doors

☐ 1. like
☐ 2. don't like

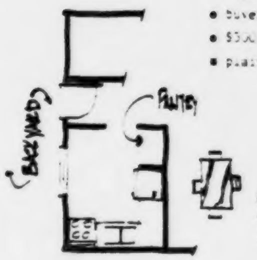
RANK (CIRCLE)
1 2 3 4 5 6 7 8


DINING TABLE
BACKYARD

- overhead cupboards not provided
- no pantry
- $500 cost saving
- plain cupboard doors

☐ 1. like
☐ 2. don't like

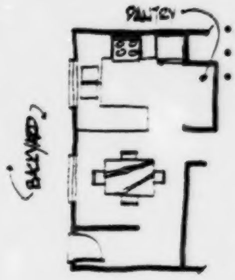
RANK (CIRCLE)
1 2 3 4 5 6 7 8


BACKYARD
PANTRY

- overhead cupboards not provided
- buyer completion of pantry
- $500 cost saving
- plain cupboard doors

☐ 1. like
☐ 2. don't like

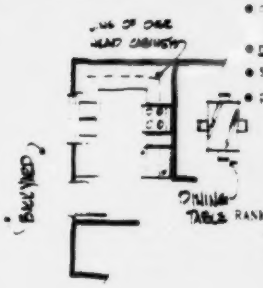
RANK (CIRCLE)
1 2 3 4 5 6 7 8


PANTRY
BACKYARD

- overhead cupboards not provided
- buyer completion of pantry
- $500 cost saving
- styled cupboard doors

☐ 1. like
☐ 2. don't like

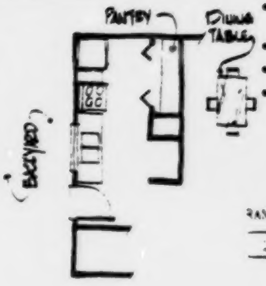
RANK (CIRCLE)
1 2 3 4 5 6 7 8


LINE OF OVER HEAD CABINETS
BACKYARD
DINING TABLE

- overhead cupboards installed
- no pantry
- $5 cost saving
- plain cupboard doors

☐ 1. like
☐ 2. don't like

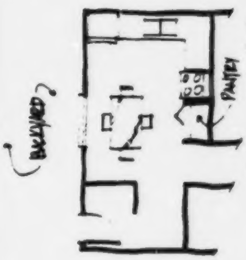
RANK (CIRCLE)
1 2 3 4 5 6 7 8


PANTRY
DINING TABLE
BACKYARD

- overhead cupboards not provided
- completed pantry
- $ cost saving
- plain cupboard doors

☐ 1. like
☐ 2. don't like

RANK (CIRCLE)
1 2 3 4 5 6 7 8

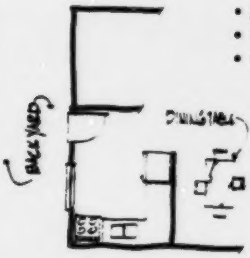

BACKYARD
PANTRY

- overhead cupboards not provided
- completed pantry
- cost saving
- styled cupboard doors

☐ 1. like
☐ 2. don't like

RANK (CIRCLE)
1 2 3 4 5 6 7 8

2/53


BACKYARD
DINING TABLE

- overhead cupboards not provided
- no pantry
- $5 cost saving
- styled cupboard doors

☐ 1. like
☐ 2. don't like

RANK (CIRCLE)
1 2 3 4 5 6 7 8

2/61

LEGEND: RANGE ▦ REFRIGERATOR ☐ SINK ▭▭ WINDOW ═

Q.15 How important would the following construction-related aspects of a home be to you if you were considering buying a new home? Please rate the importance of the following things using the scale from "1" to "7", where "1" means not at all important or that this aspect of a new home would not enter into your decision to buy or not buy and "7" means absolutely crucial or that if this aspect was not to your liking you would not buy that home.

HOW IMPORTANT?

a. the quality of painted surfaces	1 not at all impor-tant	2 of very little impor-tance	3 of little impor-tance	4 fairly impor-tant	5 very impor-tant	6 very great impor-tance	7 absolutely crucial
b. the quality of carpeting	1	2	3	4	5	6	7
c. the quality of linoleum	1	2	3	4	5	6	7
d. workmanship	1	2	3	4	5	6	7
e. insulation quality	1	2	3	4	5	6	7
f. the quality of light fixtures	1	2	3	4	5	6	7
g. the quality of closet doors	1	2	3	4	5	6	7
h. the quality of kitchen cabinets	1	2	3	4	5	6	7
i. the quality of soundproofing between adjacent homes	1 not at all impor-tant	2 of very little impor-tance	3 of little impor-tance	4 fairly impor-tant	5 very impor-tant	6 very great impor-tance	7 absolutely crucial

2/70

DUP ①-④ 3

Q.16 On this page 8 different homes are described. These homes differ in the quality of insulation and whether or not certain things are left for buyer completion in exchange for a cost saving in the price of the home. Please rank the different homes from most liked to least liked using the numbers from 1 through 8, where "1" means the most liked and "8" means the least liked. Try to avoid giving more than one home the same rank. Assume that things not described about the home are to your liking

DESCRIPTION

- interior of the home is not painted
- light fixtures & closet doors are installed
- carpet & lino are not included
- insulation is standard
- $[illegible] cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

- interior of the home is not painted
- light fixtures & closet doors are not included
- carpet & lino are not included
- insulation is standard
- $[illegible] cost saving

☐ 1. like
☐ 2. don't like

RANK 1 2 3 4 5 6 7 8

- interior of the home is painted
- light fixtures & closet doors are not included
- all floors are covered with linoleum
- insulation is standard
- $[illegible] cost saving

☐ 1. like
☐ 2. don't like

RANK 1 2 3 4 5 6 7 8

- interior of the home is painted
- light fixtures & closet doors are installed
- carpet & lino are installed
- insulation is standard
- $[illegible] cost saving

☐ 1. like
☐ 2. don't like

RANK 1 2 3 4 5 6 7 8

3/13

DESCRIPTION

- interior of the home is not painted
- light fixtures & closet doors are installed
- all floors are covered with linoleum
- insulation is upgraded
- $300 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

- interior of the home is not painted
- light fixtures & closet doors are not included
- carpet & lino are installed
- insulation is upgraded
- $700 cost saving

☐ 1. like
☐ 2. don't like

RANK 1 2 3 4 5 6 7 8

- interior of the home is painted
- light fixtures & closet doors are installed
- carpet & lino are not included
- insulation is upgraded
- $300 cost saving

☐ 1. like
☐ 2. don't like

RANK 1 2 3 4 5 6 7 8

- interior of the home is painted
- light fixtures & closet doors are not included
- carpet & lino are not installed
- insulation is upgraded
- $1000 cost saving

☐ 1. like
☐ 2. don't like

RANK 1 2 3 4 5 6 7 8

3/21

These last few questions are about your present home & the people that live in your home. All answers are confidential.

Q.17 What kind of a home do you live in at the present time?
☐ 1. single-detached house
☐ 2. semi-detached or duplex
☐ 3. townhouse
☐ 4. apartment
☐ 5. other ____________________

Q.18 How long have you lived at your present address?
WRITE-IN TO NEAREST YEAR ▷ ☐☐ YEARS

Q.19 Do you rent or own your home?
☐ 1. rent
☐ 2. own

Q.20 IF YOU RENT: Approximately how much do you pay in monthly rent?
WRITE-IN ▷ $ ☐,☐☐☐ .

IF YOU OWN: Approximately how much are your monthly mortgage payments (principal, interest, taxes)?
WRITE-IN ▷ $ ☐,☐☐☐ .
OR ☐ NO MORTGAGE

Q.21 How many people, including yourself, live in your home?
WRITE-IN ▷ ☐ PERSONS

Q.22 Do you have any children living with you?
☐ 1. yes
☐ 2. no

IF YES: How many children live with you?
WRITE-IN ▷ ☐ CHILDREN

Q.23 What is your present marital status?
☐ 1. single
☐ 2. married
☐ 3. separated/divorced
☐ 4. other

Q.24 IF APPLICABLE: What is the age of your spouse?
WRITE-IN ▷ ☐☐ YEARS

What is your age?
WRITE-IN ▷ ☐☐ YEARS

Q.25 Approximately, how much was the total before tax income (of all the members of your household) last year?
WRITE-IN ▷ $ ☐☐☐,000

Did this include income from more than one person?
☐ 1. yes
☐ 2. no

Q.26 What is your sex?
☐ 1. male
☐ 2. female

Q.27 IF APPLICABLE: Did you answer any of this questionnaire with your spouse?
☐ 1. yes
☐ 2. no

Q.28 Do you have any comments you would like to make?

____

____

THANK YOU VERY MUCH FOR YOUR TIME & CO-OPERATION IN HELPING US WITH THIS STUDY.
PLEASE USE THE STAMPED ENVELOPE PROVIDED, TO RETURN YOUR COMPLETED QUESTIONNAIRE.

3

SINGLE-DETACHED UNITS

SUMMARY OF QUESTIONNAIRE RESULTS:

		TYPE 1 [20%]	TYPE 2 [23%]	TYPE 3 [32%]	TYPE 4 [25%]	TOTAL [388]
Q.1 home buying intentions:	1. within 6 months	31%	22%	24%	26%	25%
	2. within 12 months	25%	30%	35%	19%	28%
	3. no purchase intentions	44%	49%	41%	55%	47%
Q.2 (a) preferred unit style:	1. bungalow	43%	21%	23%	16%	25%
	2. bi-level	17%	22%	21%	26%	21%
	3. split level	25%	52%	35%	39%	38%
	4. 2 storey	15%	6%	22%	19%	16%
(b) preferred unit type:	1. single-detached	100%	99%	98%	98%	97%
	2. semi/duplex	0%	1%	1%	0%	1%
	3. townhouse	0%	0%	1%	2%	2%
Q.3 bdrms. req'd.:	1. two	10%	12%	11%	12%	12%
	2. three	68%	81%	76%	79%	76%
	3. four	22%	7%	13%	9%	13%
Q.4 (a) full baths req'd.:	1. one	61%	57%	65%	71%	63%
	2. two	40%	43%	35%	30%	37%
(b) ½ baths req'd.:	1. none	10%	7%	14%	14%	11%
	2. one	83%	84%	78%	81%	81%
	3. two	7%	9%	8%	5%	7%
Q.5 sq. footage required:	1. under 1050 sq. ft.	9%	16%	15%	16%	14%
	2. 1050-1150 sq. ft.	16%	16%	10%	7%	12%
	3. 1150-1250 sq. ft.	34%	30%	36%	33%	32%
	4. 1250-1350 sq. ft.	9%	9%	8%	12%	10%
	5. 1350-1450 sq. ft.	7%	10%	4%	4%	6%
	6. 1450 sq. ft. or more	25%	19%	27%	28%	25%
Q.6 max. affordable price:	1. under $75,000	16%	18%	20%	18%	19%
	2. $75-$80,000	15%	10%	16%	17%	14%
	3. $80-$85,000	28%	22%	21%	22%	22%
	4. $85-$90,000	16%	7%	8%	12%	11%
	5. $90-$95,000	3%	8%	8%	7%	7%
	6. $95-$100,000	3%	7%	2%	3%	4%
	7. $100,000 or more	23%	28%	24%	21%	23%

	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TOTAL
Q.7 average importance rating [7=hi]:					
1. saving money on price	6.1	5.8	6.1	6.1	6.0
2. type of parking access	5.1	5.3	5.2	5.1	5.2
3. total unit size	5.5	5.2	5.1	5.1	5.2
4. lot width	5.1	5.2	5.0	5.0	5.1
5. backyard size	4.8	5.0	5.0	5.1	5.0
6. unit style	4.9	4.9	4.8	4.8	4.8
7. unit width	4.8	4.7	4.6	4.5	4.7
8. main entry location	4.5	4.1	4.6	4.1	4.4
9. structural facade features	4.2	4.4	4.4	4.0	4.3
10. two side yards	4.0	4.1	4.3	4.0	4.2
11. windows on side	4.0	4.1	4.2	3.8	4.1
12. second entry location	3.6	3.5	4.0	3.5	3.7
13. front yard size	3.5	3.6	3.9	3.5	3.7
14. decorative facade features	3.6	3.4	3.6	3.3	3.5
Q.8 average preference rankings [8=hi]:					
a.1 [see questionnaire for description]	2.9	3.4	5.7	5.4	4.6
a.2 [numbered by column]	5.2	6.7	6.6	7.0	6.4
a.3	3.0	2.0	3.0	2.3	2.6
a.4	4.5	5.4	4.9	5.9	5.2
a.5	5.0	4.1	3.7	3.5	4.0
a.6	5.9	5.4	5.2	4.1	5.1
a.7	3.7	5.1	3.8	4.9	4.3
a.8	5.9	4.0	3.5	2.8	3.9
Q.9 average preference rankings [8=hi]:					
a.1 [see questionnaire for description]	4.6	6.0	5.0	6.5	5.5
a.2	4.7	4.8	4.2	5.5	4.8
a.3	3.4	3.4	4.3	4.3	3.9
a.4	4.3	4.4	4.9	4.1	4.5
a.5	5.4	3.9	4.8	2.7	4.2
a.6	4.7	3.7	3.9	4.0	4.0
a.7	4.8	4.3	3.9	3.9	4.2
a.8	4.5	5.3	4.8	4.8	4.9
Q.10 average preference rankings [8=hi]:					
a.1 [see questionnaire for description]	3.7	5.5	4.0	6.1	4.8
a.2	2.3	2.7	4.2	5.4	3.7
a.3	2.7	2.9	5.7	5.3	4.3
a.4	6.4	5.6	4.9	3.5	5.0
a.5	5.4	3.7	3.9	2.0	3.7
a.6	4.3	5.0	5.0	5.6	5.0
a.7	6.6	6.5	5.2	5.3	5.9
a.8	5.4	5.6	3.5	2.6	3.9

	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TOTAL
Q.11 average importance rating [7=hi]:					
1. bsmt. dev't potential	5.6	5.8	5.5	5.9	5.7
2. window in kitchen	5.8	5.8	5.9	5.5	5.7
3. kitchen storage space	5.6	5.6	5.7	5.7	5.6
4. ½ bath on main flr.	5.5	5.5	5.2	5.5	5.4
5. mst. bdrm. size	5.3	5.5	5.3	5.1	5.3
6. number of bedrooms	5.4	5.3	5.1	5.1	5.3
7. living room size	5.2	5.1	5.2	5.3	5.2
8. eating area size	5.0	5.0	5.2	5.1	5.1
9. location of eating area	4.9	5.0	5.0	4.5	4.9
10. window in eating area	4.8	4.6	4.9	4.9	4.8
11. kitchen layout	4.8	5.0	5.0	4.4	4.8
12. main entry foyer	4.8	4.9	4.8	4.4	4.7
13. secondary bdrm. size	4.3	4.3	4.3	4.3	4.3
14. stair location	4.3	4.2	4.4	4.1	4.3
15. second entry type	4.2	4.4	4.2	4.1	4.2
16. main entry to living room	3.7	3.7	3.7	3.4	3.7
Q.12 average preference rankings [8=hi]:					
a.1 [see questionnaire for description]	5.1	5.3	5.1	5.3	5.3
a.2	6.4	5.8	5.9	5.3	5.9
a.3	3.6	3.6	4.1	4.1	3.9
a.4	3.9	3.7	3.5	3.1	3.5
a.5	6.3	5.1	5.1	4.7	5.2
a.6	3.0	3.3	3.9	4.2	3.6
a.7	4.1	5.1	4.7	5.5	4.9
a.8	4.0	4.1	3.6	3.4	3.7
Q.13 average preference rankings [4=hi]:					
a.1 [see questionnaire for description]	2.5	2.3	2.1	2.2	2.2
a.2	2.8	2.8	2.9	3.0	2.9
a.3	3.2	3.1	2.8	2.8	2.9
a.4	1.7	2.0	2.1	2.0	2.0
Q.14 average preference rankings [8=hi]:					
a.1 [see questionnaire for description]	5.9	6.4	5.5	6.0	5.9
a.2	3.8	3.3	3.8	3.4	3.6
a.3	5.6	5.6	5.4	4.9	5.4
a.4	5.1	4.8	4.8	5.3	5.0
a.5	3.5	3.1	3.4	3.3	3.3
a.6	5.8	6.1	5.9	6.3	6.1
.7	3.8	3.6	3.5	3.2	3.5
a.8	3.1	3.0	3.5	3.1	3.2

		TYPE 1	TYPE 2	TYPE 3	TYPE 4	TOTAL
Q.15	average importance ratings [7=hi]:					
	1. insulation quality	6.4	6.4	6.5	6.4	6.4
	2. workmanship	6.3	6.4	6.4	6.4	6.4
	3. soundproofing quality	6.2	6.1	6.1	6.0	6.1
	4. carpet quality	5.4	5.4	5.5	5.6	5.5
	5. kitchen cabinet quality	5.4	5.4	5.4	5.3	5.4
	6. lino quality	5.3	5.1	5.3	5.3	5.3
	7. paint quality	5.0	5.0	5.2	5.2	5.1
	8. closet door quality	4.9	4.6	4.6	4.7	4.7
	9. light fixture quality	4.7	4.3	4.4	4.0	4.4
Q.16	average preference rankings [8=hi]:					
	a.1 [see questionnaire for description]	3.6	3.1	4.1	3.8	3.7
	a.2	2.7	2.2	3.4	3.5	3.0
	a.3	4.0	4.1	3.5	3.7	3.8
	a.4	6.3	6.3	5.3	5.4	5.7
	a.5	5.0	5.0	4.4	4.5	4.7
	a.6	4.9	5.5	5.0	5.7	5.3
	a.7	5.3	4.9	5.4	4.3	5.0
	a.8	4.5	4.5	5.3	5.0	4.9
Q.17 present dwelling:	1. single-detached	61%	72%	62%	71%	66%
	2. semi/duplex	10%	5%	4%	7%	6%
	3. townhouse	8%	12%	9%	7%	9%
	4. apartment	18%	8%	19%	12%	14%
	5. other	4%	3%	5%	2%	4%
Q.18 length of residence:	1. one year or less	53%	64%	48%	60%	56%
	2. two years	19%	23%	21%	24%	22%
	3. three years	7%	2%	7%	5%	6%
	4. four years	5%	2%	3%	4%	4%
	5. five years or more	16%	9%	20%	7%	14%
Q.19 present tenure:	1. rent	30%	35%	40%	28%	33%
	2. own	70%	65%	60%	73%	66%

		TYPE 1	TYPE 2	TYPE 3	TYPE 4	TOTAL
Q.20	IF RENT: average monthly rent					
	1. under $250	13%	3%	8%	7%	8%
	2. $250-$350	9%	14%	10%	19%	13%
	3. $350-$450	26%	21%	18%	19%	20%
	4. $450-$500	26%	17%	29%	26%	25%
	5. $550-$650	17%	33%	18%	22%	23%
	6. $650 or more	9%	7%	16%	7%	11%
	IF OWN: average monthly mortgage					
	1. under $450	6%	8%	10%	6%	3%
	2. $400-$550	10%	4%	10%	6%	8%
	3. $550-$650	17%	9%	17%	12%	15%
	4. $650-$750	17%	11%	19%	30%	20%
	5. $750-$850	23%	21%	20%	14%	19%
	6. $850-$950	13%	13%	7%	14%	11%
	7. $950-$1050	10%	15%	6%	12%	11%
	8. $1050 or more	4%	17%	10%	6%	9%
Q.21	household size: 1. one person	5%	5%	4%	5%	5%
	2. two	43%	47%	41%	43%	43%
	3. three	22%	23%	33%	23%	26%
	4. four	22%	19%	17%	19%	19%
	5. five or more	8%	7%	5%	10%	7%
Q.22	number of children: 1. none	52%	58%	49%	52%	52%
	2. one	16%	16%	31%	22%	22%
	3. two	25%	21%	16%	18%	19%
	4. three or more	8%	5%	4%	8%	6%
Q.23	marital status: 1. single	8%	14%	10%	8%	10%
	2. married	88%	82%	81%	88%	85%
	3. separated/divorced	4%	3%	5%	0%	3%
	4. other	0%	1%	4%	3%	2%
Q.24	age of spouse: 1. under 25 yrs.	20%	25%	20%	22%	21%
	2. 25-29	39%	43%	47%	54%	46%
	3. 30-34	16%	17%	17%	17%	
	4. 35-39	8%	6%	4%	4%	5%
	5. 40-44	3%	1%	3%	1%	2%
	6. 45-49	5%	3%	5%	1%	3%
	7. 50-54	6%	0%	4%	1%	3%
	8. 55 yrs. & older	3%	1%	1%	0%	2%

			TYPE 1	TYPE 2	TYPE 3	TYPE 4	TOTAL
Q.24	cont'd. . .						
	age of respondent:	1. under 25 yrs.	14%	18%	26%	31%	23%
		2. 25-29	37%	42%	39%	44%	40%
		3. 30-34	27%	24%	19%	14%	21%
		4. 35-39	8%	9%	5%	7%	7%
		5. 40-44	3%	1%	3%	0%	2%
		6. 45-49	4%	1%	4%	2%	3%
		7. 50-54	1%	4%	4%	1%	3%
		8. 55 yrs. & older	6%	1%	0%	0%	2%
Q.25	household income:	1. under $25,000	25%	21%	17%	22%	21%
		2. $25-$30,000	18%	14%	16%	23%	17%
		3. $30-$35,000	19%	13%	15%	17%	16%
		4. $35-$40,000	21%	18%	11%	11%	14%
		5. $40-$45,000	12%	8%	10%	13%	11%
		6. $45-$50,000	3%	9%	12%	9%	8%
		7. $50,000 or more	3%	19%	20%	5%	13%
	more than one income:	1. yes	55%	61%	66%	63%	62%
		2. no	45%	39%	34%	37%	38%
Q.26	respondents' sex:	1. male	60%	69%	55%	65%	62%
		2. female	40%	32%	45%	35%	38%
Q.27	answered with spouse:	1. yes	54%	57%	45%	56%	52%
		2. no	46%	43%	55%	44%	48%
A.	respondent type:	1. Edmonton shopper	30%	29%	33%	28%	30%
		2. Edmonton recent buyer	23%	25%	20%	31%	24%
		3. Calgary shopper	22%	20%	25%	16%	22%
		4. Calgary recent buyer	25%	26%	22%	25%	24%

A.1.2 SEMI-DETACHED UNIT QUESTIONNAIRE

STRATEGICS
Strategic Development Services Limited

D, 827 Fifth Avenue NW
Calgary, Alberta T2N 0R5
(403) 283-6927

9302—109A Avenue
Edmonton, Alberta
Canada, T5H 1E8
(403) 429-0044

INSTRUCTIONS: Please read each question carefully before answering. In most cases your answer can be noted by checking or circling a numbered response. Some questions have a space for a written response.

Your assistance in this important study is greatly appreciated. Please use the envelope provided to mail your completed questionnaire back to us. Postage has already been provided. All answers will be kept in the strictest confidence.

It is important that you return your completed questionnaire by October [illegible] 198[illegible].

[illegible]. How would you describe your home buying intentions at the present time? (CHECK ONLY ONE)

- ☐ 1. plan to buy a home within the next six months
- ☐ 2. plan to buy a home within the next year or so
- ☐ 3. no plans to buy within the next few years

4. If you were to buy a new home, what style of home would you most prefer? (CHECK ONE ONLY)

- ☐ 1. bungalow (single-level)
- ☐ 2. bi-level
- ☐ 3. split level
- ☐ 4. 2-storey
- ☐ 5. other ______________________

[illegible]. If you were to buy a new home, what type of home would you most prefer? (CHECK ONE ONLY)

- ☐ 1. a single-detached home
- ☐ 2. a semi-detached home or duplex
- ☐ 3. a townhome
- ☐ 4. an apartment condominium
- ☐ 5. other ______________________

If you were to buy a new home, how many bedrooms would you need? WRITE-IN NUMBER OF BEDROOMS > ☐

[illegible]. If you were to buy a new home,

a) how many full bathrooms (4-piece) would you need? WRITE-IN NUMBER OF FULL BATHS > ☐

how many ½ baths (2-piece) would you need? WRITE-IN NUMBER OF ½ BATHS > ☐

Approximately, how large (square footage) would you need your next home to be? WRITE-IN APPROXIMATE SIZE > __,__ (NOT INCLUDING BASEMENT)

[illegible]. What is the maximum price you would afford to pay for a new home at the present time? WRITE-IN > $ ___ ___ ___

Q.7 If you were deciding whether to buy a particular new semi-detached home, how important would the following things be? Please rate the importance of these things using the scale from 1 to 7. A "1" means not at all important or that this aspect of a new home would not enter into your decision to buy or not buy. A "7" means absolutely crucial or that if this aspect was not as you wanted it, you would not buy that home.

HOW IMPORTANT?

	1	2	3	4	5	6	7
	not at all important	of very little importance	of little importance	fairly important	very important	very great importance	absolutely crucial
a. the style of the home, that is, whether it's a bungalow, bi-level, 2-storey, etc. CIRCLE NUMBER	1	2	3	4	5	6	7
b. the size of the backyard	1	2	3	4	5	6	7
c. the size of the front yard	1	2	3	4	5	6	7
d. yard space on the side of the home	1	2	3	4	5	6	7
e. parking access, that is, whether you use a rear lane or have access from the street to park your car on your lot	1	2	3	4	5	6	7
f. location of the main entry, that is, whether it's at the front or side of the house	1	2	3	4	5	6	7
g. location of the 2nd entry, that is, whether it's at the side or back	1	2	3	4	5	6	7
h. windows on the front, back and side of the home	1	2	3	4	5	6	7
i. the total size (square footage) of the house	1	2	3	4	5	6	7
j. being able to save money on the total price of the house	1	2	3	4	5	6	7
k. features on the front of the house such as a bay window, chimney chase, or brick accent material, etc.	1	2	3	4	5	6	7
l. features on the front of the house such as decorative shutters, window grills, or other decorative materials	1	2	3	4	5	6	7
m. the width of the home, that is if it's [illegible] or [illegible] feet wide, for example	1	2	3	4	5	6	7
n. the width of the lot, that is if it's [illegible] or [illegible] feet wide, for example	1	2	3	4	5	6	7
	not at all important	of very little importance	of little importance	fairly important	very important	very great importance	absolutely crucial

INSTRUCTIONS FOR RANKING QUESTIONS

A number of questions in this questionnaire ask you to rank in order of your preference some different designs and layouts of a home. The alternatives are in most cases described by a simple diagram and a verbal description.

The alternatives only focus on a limited number of characteristics of a home. In order to rank the alternatives, assume that the things not shown or described about the home are to your liking. For example, if the alternatives show different kitchen layouts, assume that the rest of the home, its location, backyard space, style of home, etc. are to your liking.

Some symbols may be used in the diagrams. These are always explained at the bottom of the page.

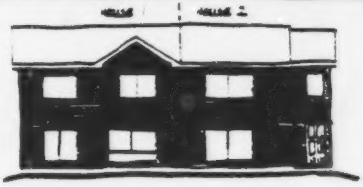
You may find it easiest to rank the alternatives in order of your preference if you first go through and check off those you like and those you don't like and then go back and rank the ones you liked and rank the ones you didn't like. If for example, there were 8 alternative or different homes to rank, you may find 3 that you like and 5 that you don't like. The three that you liked, you would rank using the numbers 1, 2, 3 where "1" would be the most liked, "2" the second most liked and "3" the third most liked. The five that you didn't like would be ranked using the numbers 4, 5, 6, 7, 8 where a "4" would be given to the fourth most liked alternative and so on. The very least liked alternative would be ranked "8".

PLEASE NOTE: Where the size of the home is shown in square feet, this only includes the developed, liveable area of a home. It does not include the basement, although all the alternative homes do have basements.

The cost savings associated with an alternative should be considered as an amount that would be taken off the maximum price you could afford to pay for a new home.

Try to avoid giving more than one alternative the same rank.

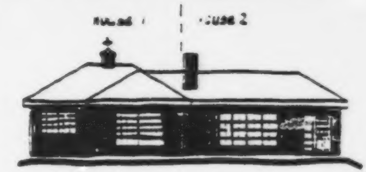
Q.8 The diagrams on this page show different facade treatments or how two attached houses appear from the street. The homes also differ in style, size and cost savings. Please rank the 8 different homes from most liked to least liked using the numbers from 1 through 8 where "1" means the most liked and "8" means the least liked. Try to avoid giving more than one house the same rank. Assume that the interior arrangement and other things not shown are to your liking. Consider the cost savings as an amount which would be taken off the maximum price you could afford. The descriptions are for one side of the semi-detached home only, that is, for example, each side is 25 feet wide, each side is 1000 square feet in size, etc.



- house 25 feet wide
- house size 900 sq. ft.
- $5000 cost saving

☐ 1. like
☐ 2. don't like

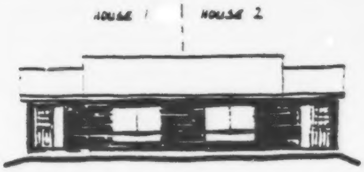
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- house 25 feet wide
- house size 900 sq. ft.
- $2000 cost saving

☐ 1. like
☐ 2. don't like

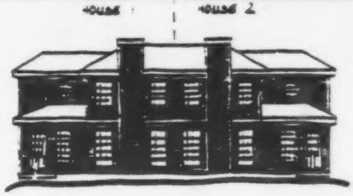
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- house 25 feet wide
- house size 900 sq. ft.
- $4000 cost saving

☐ 1. like
☐ 2. don't like

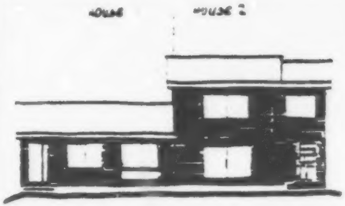
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- house 25 feet wide
- house size 1000 sq. ft.
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

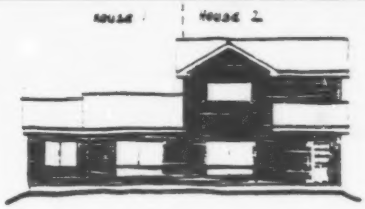
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- house 25 feet wide
- house size 1100 sq. ft.
- $3000 cost saving

☐ 1. like
☐ 2. don't like

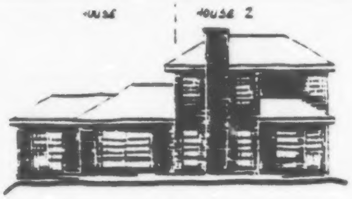
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- house 25 feet wide
- house size 1100 sq. ft.
- $1000 cost saving

☐ 1. like
☐ 2. don't like

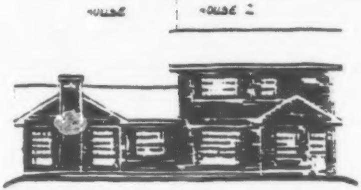
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- house 25 feet wide
- house size 900 sq. ft.
- $4000 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

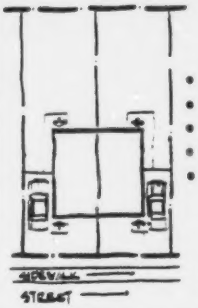


- house 25 feet wide
- house size 900 sq. ft.
- $4000 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

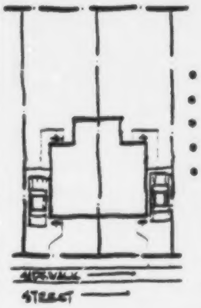
Q.9 Shown below are 8 different **semi-detached** homes which vary in **shape**, **parking arrangement**, **size**, **placement on a lot** and **cost savings**. Please rank the different homes in order of your preference using the numbers from "1" to "8", where **"1" means the most liked** and **"8" means the least liked**. Try to avoid giving more than one home the same rank. Assume that the things not shown about the home, the style, appearance, location, interior arrangements, etc. are to your liking. Consider the cost savings as an amount which would be taken off the maximum price you could afford. **The descriptions are for one side of the semi-detached home only**, that is, for example, each side is 25 feet wide, each side is 1000 square feet in size, etc.



- lot size 30 by 100 feet
- house 20 feet wide
- front yard 15 feet deep
- house size 900 square feet
- $4000 cost saving

☐ 1. like
☐ 2. don't like

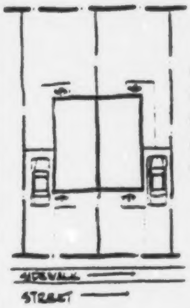
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- house 20 feet wide
- front yard 15 feet deep
- house size 1000 square feet
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

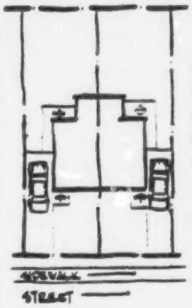
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- house 20 feet wide
- front yard 25 feet deep
- house size 900 square feet
- $4000 cost saving

☐ 1. like
☐ 2. don't like

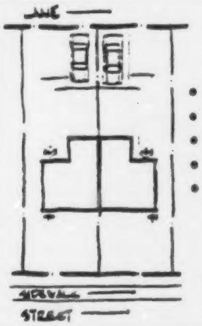
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- house 20 feet wide
- front yard 25 feet deep
- house size 900 square feet
- $2000 cost saving

☐ 1. like
☐ 2. don't like

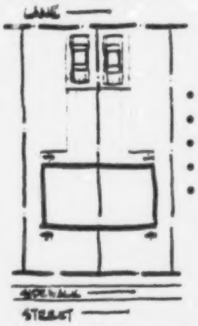
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- house 25 feet wide
- front yard 15 feet deep
- house size 900 square feet
- $4000 cost saving

☐ 1. like
☐ 2. don't like

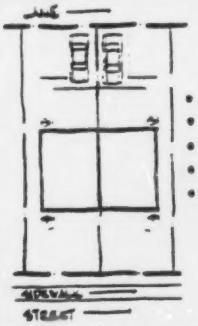
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- house 25 feet wide
- frontyard 15 feet deep
- house size 1000 square feet
- $2000 cost saving

☐ 1. like
☐ 2. don't like

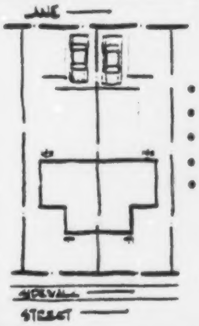
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- house 25 feet wide
- front yard 25 feet deep
- house size 1000 square feet
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8



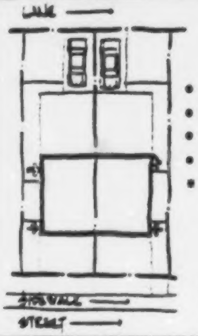
- lot size 30 by 100 feet
- house 25 feet wide
- front yard 25 feet deep
- house size 900 square feet
- $4000 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

LEGEND: MAIN ENTRY ↑ SECONDARY ENTRY ⇧ LOT LINE —·—

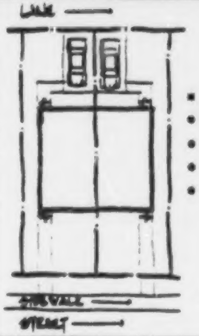
Q.10 The 8 diagrams on this page show variations in entry locations, front yard setback, unit style, size of house and cost savings. Please rank the 8 homes from most liked to least liked using the numbers from 1 through 8, where "1" means most liked and "8" means the least liked. Try to avoid giving more than one house the same rank. Assume that the interior arrangement of the homes and other things not shown are to your liking. Consider the cost savings as an amount which would be taken off the maximum price you could afford. The descriptions are for one side of the semi-detached home only, that is, for example, each side is 25 feet wide, each side is 1000 square feet in size, etc.



- lot size 30 by 100 feet
- 1100 square foot bi-level
- house 25 feet wide
- front yard 15 feet deep
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

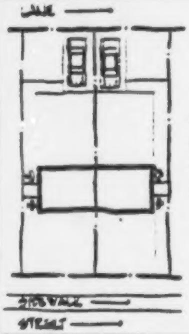
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- 1100 square foot bungalow
- house 25 feet wide
- front yard 25 feet deep
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

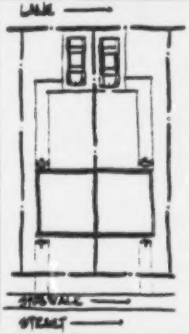
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- 900 square foot 2-storey
- house 25 feet wide
- front yard 25 feet deep
- $4000 cost saving

☐ 1. like
☐ 2. don't like

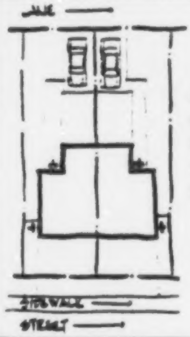
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- 900 square foot split-level
- house 25 feet wide
- front yard 15 feet deep
- $4000 cost saving

☐ 1. like
☐ 2. don't like

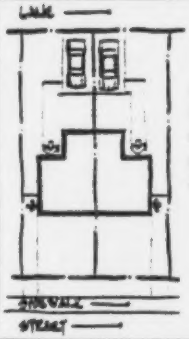
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- 900 square foot bungalow
- house 25 feet wide
- front yard 15 feet deep
- $4000 cost saving

☐ 1. like
☐ 2. don't like

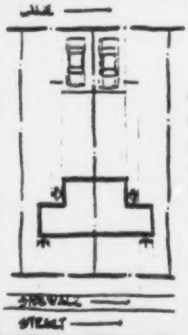
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- 1000 square foot split level
- house 25 feet wide
- front yard 25 feet deep
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

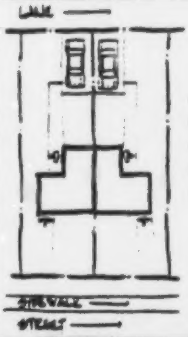
RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- 1000 square foot 2-storey
- house 25 feet wide
- front yard 15 feet deep
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8



- lot size 30 by 100 feet
- 900 square foot bi-level
- house 25 feet wide
- front yard 25 feet deep
- $4000 cost saving

☐ 1. like
☐ 2. don't like

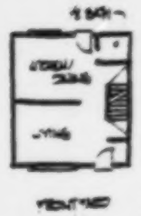
RANK (CIRCLE) 1 2 3 4 5 6 7 8

LEGEND: MAIN ENTRY ↑ SECONDARY ENTRY ⇧ LOT LINE —·—

Q.11 How important would the following aspects of the interior layout or arrangement of a home be to you, if you were considering buying a new home? Please rate the importance of the items listed below using the scale from 1 to 7, where "1" means not at all important or that this aspect of a new home would not enter into your decision to buy or not buy and where "7" means absolutely crucial or that if this aspect was not to your liking, you would not buy that home.

	HOW IMPORTANT?						
	1 not at all impor-tant	2 of very little impor-tance	3 of little impor-tance	4 fairly impor-tant	5 very impor-tant	6 very great impor-tance	7 absolutely crucial
a. the size of the living room							
b. the size of the eating or dining area	1	2	3	4	5	6	7
c. the size of the master bedroom	1	2	3	4	5	6	7
d. the size of secondary bedrooms	1	2	3	4	5	6	7
e. the number of bedrooms	1	2	3	4	5	6	7
f. the amount of kitchen storage space	1	2	3	4	5	6	7
g. the layout of the kitchen ("L" shape, "U" shape, etc.)	1	2	3	4	5	6	7
h. a window in the kitchen work area	1	2	3	4	5	6	7
i. a window in the eating/dining area	1	2	3	4	5	6	7
j. a ½ bath on the main floor if a full bath was on another floor	1	2	3	4	5	6	7
k. the location of the stairway (near an entry or more centrally located)	1	2	3	4	5	6	7
l. an entrance hall or foyer off the main entry	1	2	3	4	5	6	7
m. a main entry leading directly to the living room	1	2	3	4	5	6	7
n. the location of the eating area (with the kitchen or a separate dining area)	1	2	3	4	5	6	7
o. whether the 2nd entry is a sliding patio door or a hinged door	1	2	3	4	5	6	7
p. the potential to develop the basement into a living or sleeping area	1	2	3	4	5	6	7
	not at all impor-tant	of very little impor-tance	of little impor-tance	fairly impor-tant	very impor-tant	very great impor-tance	absolutely crucial

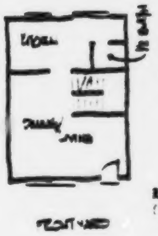
[illegible] The diagrams on this page show some variations in interior layout and design. Only the main floor is shown; bedrooms and a full bath would be on the second floor. Please rank the different layouts from most liked to least liked using the numbers from 1 through 8, where "1" means the most liked and "8" means the least liked. Try to avoid giving more than one layout the same rank. Assume that things not shown about the house are to your liking. Consider the cost savings to be an amount which would be taken off the maximum price you could afford.


½ BATH
KITCHEN/DINING
LIVING
FRONT YARD

- 900 square foot 2-storey
- house 20 feet wide
- ½ bath
- $4000 cost saving

☐ 1. like
☐ 2. don't like

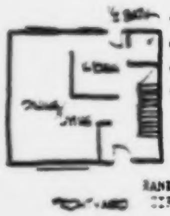
RANK (CIRCLE) 1 2 3 4 5 6 7 8


½ BATH
KITCHEN
DINING/LIVING
FRONT YARD

- 1100 square foot 2-storey
- house 20 feet wide
- ½ bath
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

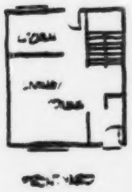
RANK (CIRCLE) 1 2 3 4 5 6 7 8


½ BATH
KITCHEN
DINING/LIVING
FRONT YARD

- 1100 square foot 2-storey
- house 25 feet wide
- ½ bath
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

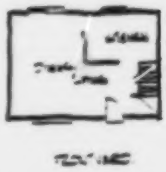
RANK (CIRCLE) 1 2 3 4 5 6 7 8


KITCHEN
LIVING/DINING
FRONT YARD

- 900 square foot 2-storey
- house 20 feet wide
- no ½ bath
- $5500 cost saving

☐ 1. like
☐ 2. don't like

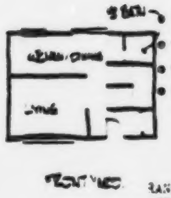
RANK (CIRCLE) 1 2 3 4 5 6 7 8


KITCHEN
DINING/LIVING
FRONT YARD

- 900 square foot 2-storey
- house 25 feet wide
- no ½ bath
- $5500 cost saving

☐ 1. like
☐ 2. don't like

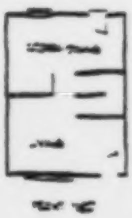
RANK (CIRCLE) 1 2 3 4 5 6 7 8


½ BATH
KITCHEN/DINING
LIVING
FRONT YARD

- 900 square foot 2-storey
- house 25 feet wide
- ½ bath
- $4000 cost saving

☐ 1. like
☐ 2. don't like

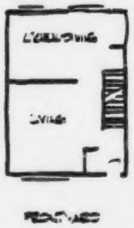
RANK (CIRCLE) 1 2 3 4 5 6 7 8


KITCHEN/DINING
LIVING
FRONT YARD

- 1100 square foot 2-storey
- house 20 feet wide
- no ½ bath
- $1500 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8


KITCHEN/DINING
LIVING
FRONT YARD

- 1100 square foot 2-storey
- house 20 feet wide
- no ½ bath
- $1500 cost saving

☐ 1. like
☐ 2. don't like

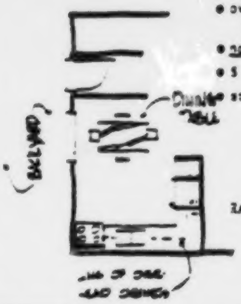
RANK (CIRCLE) 1 2 3 4 5 6 7 8

LEGEND: WINDOW ═ DOOR ⌐ SLIDING DOOR ═

Q.13 Described below are 4 different homes that vary in terms of the space given to certain rooms. Please rank them from most liked to least liked using the numbers from 1 to 4, where "1" means the most liked and "4" means the least liked. Try to avoid giving more than one home the same rank.

DESCRIPTION • 1100 square foot bungalow • large living room (200 square feet) • small eating/dining area (50 square feet) • 2 large bedrooms (200 square feet each)	☐ 1. like ☐ 2. don't like RANK (CIRCLE) 1 2 3 4
• 1100 square foot 2-storey • large living room (200 square feet) • small eating/dining area (50 square feet) • 1 large bedroom (200 square feet) and 2 small bedrooms (100 square feet each)	☐ 1. like ☐ 2. don't like RANK (CIRCLE) 1 2 3 4
• 1100 square foot bungalow • small living room (150 square feet) • large eating/dining area (100 square feet) • 1 large bedroom (200 square feet) and 2 small bedrooms (100 square feet each)	☐ 1. like ☐ 2. don't like RANK (CIRCLE) 1 2 3 4
• 1100 square foot 2-storey • small living room (150 square feet) • large eating/dining area (100 square feet) • 2 large bedrooms (200 square feet each)	☐ 1. like ☐ 2. don't like RANK (CIRCLE) 1 2 3 4

[illegible] The 8 diagrams on this page show different types of kitchen arrangements. The differences basically involve the layout of the work area, the location of the eating/dining area, whether storage space is provided by overhead cupboards or a pantry and whether the completion of that storage space is included in the price or done by the buyer at a saving of $500 off the price of the home. Please rank the different kitchen arrangements from most liked to least liked using the numbers from 1 through 8, where "1" means the most liked and "8" means the least liked. Try to avoid giving more than one arrangement the same rank. Assume that the other things not shown are to your liking.



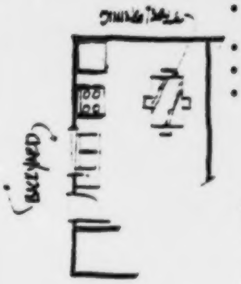
(BACKYARD)
DINING TABLE
LINE OF OVERHEAD CABINETS

- overhead cupboards installed
- no pantry
- $ 0 cost saving
- styled cupboard doors

1. like
2. don't like

RANK (CIRCLE)

1 2 3 4 5 6 7 8



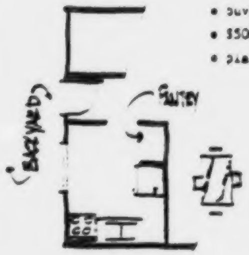
DINING TABLE
(BACKYARD)

- overhead cupboards not provided
- no pantry
- $500 cost saving
- plain cupboard doors

1. like
2. don't like

RANK (CIRCLE)

1 2 3 4 5 6 7 8



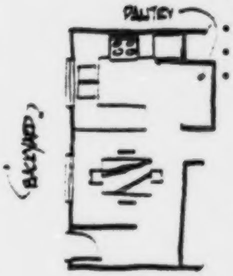
(BACKYARD)
PANTRY

- overhead cupboards not provided
- buyer completion of pantry
- $500 cost saving
- plain cupboard doors

1. like
2. don't like

RANK (CIRCLE)

1 2 3 4 5 6 7 8



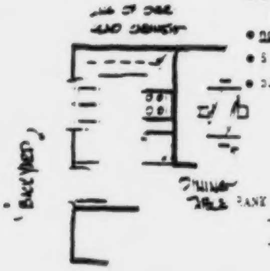
PANTRY
(BACKYARD)

- overhead cupboards not provided
- buyer completion of pantry
- $500 cost saving
- styled cupboard doors

1. like
2. don't like

RANK (CIRCLE)

1 2 3 4 5 6 7 8



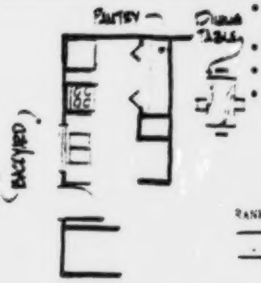
LINE OF OVERHEAD CABINETS
DINING TABLE
(BACKYARD)

- overhead cupboards installed
- no pantry
- $ 0 cost saving
- plain cupboard doors

1. like
2. don't like

RANK (CIRCLE)

1 2 3 4 5 6 7 8



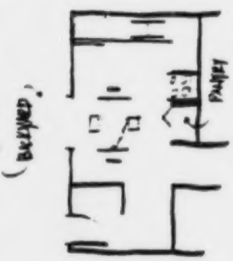
PANTRY
DINING TABLE
(BACKYARD)

- overhead cupboards not provided
- completed pantry
- $ 0 cost saving
- plain cupboard doors

1. like
2. don't like

RANK (CIRCLE)

1 2 3 4 5 6 7 8



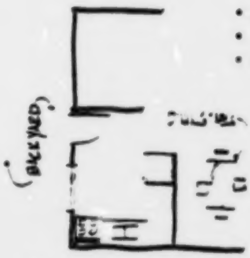
PANTRY
(BACKYARD)

- overhead cupboards not provided
- completed pantry
- $ 0 cost saving
- styled cupboard doors

1. like
2. don't like

RANK (CIRCLE)

1 2 3 4 5 6 7 8



DINING TABLE
(BACKYARD)

- overhead cupboards not provided
- no pantry
- $500 cost saving
- styled cupboard doors

1. like
2. don't like

RANK (CIRCLE)

1 2 3 4 5 6 7 8

LEGEND: RANGE ⊞ REFRIGERATOR ▭ SINK ⊥ WINDOW →

C.15 How important would the following construction-related aspects of a home be to you if you were considering buying a new home? Please rate the importance of the following things using the scale from "1" to "7", where "1" means not at all important or that this aspect of a new home would not enter into your decision to buy or not buy and "7" means absolutely critical, or that if this aspect was not to your liking you would not buy that home.

HOW IMPORTANT?

	1	2	3	4	5	6	7
	not at all important	of very little importance	of little importance	fairly important	very important	very great importance	absolutely critical
a. the quality of painted surfaces	1	2	3	4	5	6	7
b. the quality of carpeting	1	2	3	4	5	6	7
c. the quality of linoleum	1	2	3	4	5	6	7
d. workmanship	1	2	3	4	5	6	7
e. insulation quality	1	2	3	4	5	6	7
f. the quality of light fixtures	1	2	3	4	5	6	7
g. the quality of closet doors	1	2	3	4	5	6	7
h. the quality of kitchen cabinets	1	2	3	4	5	6	7
i. the quality of soundproofing between adjacent homes	1	2	3	4	5	6	7
	not at all important	of very little importance	of little importance	fairly important	very important	very great importance	absolutely critical

Q.16 On this page 8 different homes are described. These homes differ in the quality of insulation, soundproofing & whether or not certain things are left for buyer completion in exchange for a cost saving in the price of the home. Please rank the different homes from most liked to least liked using the numbers from 1 through 8, where "1" means the most liked and "8" means the least liked. Try to avoid giving more than one home the same rank. Assume that things not described about the home are to your liking.

DESCRIPTION

- interior of the home is not painted
- light fixtures & closet doors are installed
- carpet & lino are not included
- soundproofing is standard
- insulation is standard
- $2300 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

DESCRIPTION

- interior of the home is not painted
- light fixtures & closet doors are installed
- all floors are covered with linoleum
- soundproofing is standard
- insulation is upgraded
- $300 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

- interior of the home is not painted
- light fixtures & closet doors are not included
- carpet & lino are not included
- soundproofing is upgraded
- insulation is standard
- $2500 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

- interior of the home is not painted
- light fixtures & closet doors are not included
- carpet & lino are included
- soundproofing is upgraded
- insulation is upgraded
- $200 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

- interior of the home is painted
- light fixtures & closet doors are not included
- all floors are covered with linoleum
- soundproofing is upgraded
- insulation is standard
- $500 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

- interior of the home is painted
- light fixtures & closet doors are installed
- carpet & lino are not included
- soundproofing is standard
- insulation is upgraded
- $300 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

- interior of the home is painted
- light fixtures & closet doors are installed
- all floors are covered with linoleum
- soundproofing is standard
- insulation is standard
- $[illegible] cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

- interior of the home is painted
- light fixtures & closet doors are not included
- carpet & lino are not installed
- soundproofing is upgraded
- insulation is upgraded
- $500 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

These last few questions are about your present home & the people that live in your home.
All answers are confidential.

D.17 What kind of a home do you live in at the present time?

☐ 1. single-detached house
☐ 2. semi-detached or duplex
☐ 3. townhouse
☐ 4. apartment
☐ 5. other ______________________

D.18 How long have you lived at your present address?

WRITE-IN TO CLOSEST YEAR > ☐☐ YEARS

D.19 Do you rent or own your home?

☐ 1. rent
☐ 2. own

D.20 IF YOU RENT: Approximately how much do you pay in monthly rent?

WRITE-IN > $ ☐,☐☐☐ .00

IF YOU OWN: Approximately how much are your monthly mortgage payments (principal, interest, taxes)?

WRITE-IN > $ ☐,☐☐☐ .00

OR ☐ NO MORTGAGE

D.21 How many people, including yourself live in your home?

WRITE-IN > ☐ PERSONS

D.22 Do you have any children living with you?

☐ 1. yes
☐ 2. no

IF YES: How many children live with you?

WRITE-IN > ☐ CHILDREN

D.23 What is your present marital status?

☐ 1. single
☐ 2. married
☐ 3. separated/divorced
☐ 4. other

D.24 IF APPLICABLE: What is the age of your spouse?

WRITE-IN > ☐☐ YEARS

What is your age?

WRITE-IN > ☐☐ YEARS

D.25 Approximately, how much was the total (before tax income) of all the members of your household last year?

WRITE-IN > $ ☐☐☐, 0 0 0 . 0 0

Did this include income from more than one person?

☐ 1. yes
☐ 2. no

D.26 What is your sex?

☐ 1. male
☐ 2. female

D.27 IF APPLICABLE: Did you answer any of this questionnaire with your spouse?

☐ 1. yes
☐ 2. no

D.28 Do you have any comments you would like to make?

____

____

THANK YOU VERY MUCH FOR YOUR TIME & CO-OPERATION IN HELPING US WITH THIS STUDY.
PLEASE USE THE STAMPED ENVELOPE PROVIDED, TO RETURN YOUR COMPLETED QUESTIONNAIRE.

SEMI-DETACHED UNITS

SUMMARY OF QUESTIONNAIRE RESULTS [n = 43]

Q.1 home buying intentions:		1. within 6 months	7%		
		2. within 12 months	38%		
		3. no purchase intentions	55%		
Q.2 (a) preferred unit style:		1. bungalow	17%		
		2. bi-level	17%		
		3. split level	54%		
		4. 2-storey	12%		
	(b) preferred unit type:	1. single-detached	91%		
		2. semi/duplex	7%		
		3. townhouse	2%		
Q.3 bedrooms required:		1. two	9%		
		2. three	67%		
		3. four	23%		
Q.4 (a) full baths required:		1. one	65%		
		2 two	35%		
	(b) half baths required:	1. none	9%		
		2. one	77%		
		3. two	14%		
Q.5 square footage required:		1. under 1050 sq.ft.	7%	4. 1250-1350 sq.ft.	7%
		2. 1050-1150 sq.ft.	15%	5. 1350-1450 sq.ft.	12%
		3. 1150-1250 sq.ft.	39%	6 1450 sq.ft. or more	20%
Q.6 maximum affordable price:		1. under $70,000	5%	5. $85-$90,000	12%
		2. $70-$75,000	17%	6. $90-$95,000	12%
		3. $75-$80,000	10%	7. $95-$100,000	2%
		4. $80-$85,000	34%	8. $100,000 or more	7%

Q.7 average importance rating: [7=hi]	1.	saving money on price	6.0
	2.	windows on three sides	5.4
	3.	type of parking access	5.3
	4.	total unit size	5.2
	5.	backyard size	4.9
	6.	lot width	4.7
	7.	unit style	4.4
	8.	unit width	4.4
	9.	structural facade features	4.3
	10.	main entry location	4.0
	11.	side yard space	3.7
	12.	front yard size	3.5
	13.	decorative facade features	3.4

Q.8 average preference rankings:	a.1	3.7	a.5	5.3
[8 = hi]	a.2	2.6	a.6	5.4
[see questionnaire for description]	a.3	3.4	a.7	4.1
[numbered by column]	a.4	5.6	a.8	6.1

Q.9 average preference rankings:	a.1	4.7	a.5	3.8
[8 = hi]	a.2	4.2	a.6	4.0
[see questionnaire for description]	a.3	4.5	a.7	5.3
	a.4	4.7	a.8	4.5

Q.10 average preference rankings:	a.1	4.6	a.5	4.4
[8 = hi]	a.2	3.7	a.6	5.5
[see questionnaire for description]	a.3	4.4	a.7	5.4
	a.4	4.4	a.8	4.1

Q.11 average importance rating:	1.	bsmt. dev't. potential	5.6
	2.	kitchen storage space	5.6
	3.	½ bath on main flr.	5.5
	4.	window in kitchen	5.5
	5.	number of bedrooms	5.3
	6.	living room size	5.0
	7.	eating area size	5.0
	8.	mstr. bedroom size	5.0
	9.	kitchen layout	5.0
	10.	window in eating area	5.0
	11.	main entry foyer	4.8
	12.	eating area location	4.8
	13.	stair location	4.6
	14.	second entry type	4.4
	15.	secondary bdrm. size	4.3
	16.	main entry to living room	3.5

Q.12 average preference rankings:
[8 = hi]
[see questionnaire for description]

a.1	4.8	a.5	4.9
a.2	5.4	a.6	3.6
a.3	4.0	a.7	5.5
a.4	3.9	a.8	4.0

Q.13 average preference rankings:
[4 = hi]
[see questionnaire for description]

a.1	2.1
a.2	2.7
a.3	3.0
a.4	2.2

Q.14 average preference rankings:
[8 = hi]
[see questionnaire for description]

a.1	5.7	a.5	3.4
a.2	3.8	a.6	5.7
a.3	5.4	a.7	3.3
a.4	4.8	a.8	3.5

Q.15 average importance rating:

1. insulation quality	6.6
2. soundproofing quality	6.5
3. workmanship	6.3
4. carpet quality	5.6
5. lino quality	5.4
6. paint quality	5.3
7. kitchen cabinet quality	5.3
8. closet door quality	4.5
9. light fixture quality	4.4

Q.16 average preference rankings:
[8 = hi]
[see questionnaire for description]

a.1	3.1	a.5	4.6
a.2	3.8	a.6	5.4
a.3	4.2	a.7	4.6
a.4	4.0	a.8	6.2

Q.17 present dwelling:

1. semi-detached	100%

Q.18 length of residence:

1. one year or less	43%
2. two years	43%
3. three years	10%
4. four years	5%

Q.19 present tenure:

1. rent	29%
2. own	71%

Q.20	IF RENT: average monthly rent:	1. $550-$650	33%		
		2. $650-$750	42%		
		3. $750-$850	17%		
		4. $850-$950	8%		
	IF OWN: average monthly mortgage:	1. $450-$550	11%	4. $750-$850	25%
		2. $550-$650	18%	5. $850-$950	4%
		3. $650-$750	39%	6. $950 or more	4%
Q.21	household size:	1. one person	7%		
		2. two	38%		
		3. three	24%		
		4. four	21%		
		5. five or more	9%		
Q.22	number of children:	1. none	53%		
		2. one	19%		
		3. two	16%		
		4. three or more	12%		
Q.23	marital status:	1. single	7%		
		2. married	88%		
		3. separated/divorced	5%		
Q.24	age of spouse:	1. under 25 yrs.	42%	5. 40-44	3%
		2. 25-29	34%	6. 45-49	-
		3. 30-34	13%	7. 50-54	-
		4. 35-39	3%	8. 55 & older	6%
	age of respondent:	1. under 25 yrs.	21%	5. 40-44	2%
		2. 25-29	40%	6. 45-49	-
		3. 30-34	14%	7. 50-54	2%
		4. 35-39	10%	8. 55 & older	2%
Q.25	household income:	1. under $20,000	15%	5. $35-$40,000	18%
		2. $20-$25,000	6%	6. $40-$45,000	12%
		3. $25-$30,000	18%	7. $45-$50,000	6%
		4. $30-$35,000	18%	8. $50,000 & more	9%
	more than one income:	1. yes	64%		
		2. no	36%		

Q.26 respondents' sex:	1. male	64%
	2. female	36%
Q.27 answered with spouse:	1. yes	51%
	2. no	49%
A. respondent type:	1. Edmonton recent buyer	58%
	2. Calgary recent buyer	42%

A.1.3 TOWNHOUSE UNIT QUESTIONNAIRE

STRATEGICS
Strategic Development Services Limited

D - 827 Fifth Avenue NW
Calgary, Alberta T2N 0R5
(403) 283-6927

9302—109A Avenue
Edmonton, Alberta.
Canada, T5H 1E8
(403) 429-0044

INSTRUCTIONS: Please read each question carefully before answering. In most cases your answer can be noted by checking or circling a numbered response. Some questions have a space for a written response.

Your assistance in this important study is greatly appreciated. Please use the envelope provided to mail your completed questionnaire back to us. Postage has already been provided. All answers will be kept in the strictest confidence.

It is important that you return your completed questionnaire by October 27, 1982.

1

Q.1 How would you describe your home buying intentions at the present time? (CHECK ONLY ONE)	☐1. plan to buy a home within the next six months ☐2. plan to buy a home within the next year or so ☐3. no plans to buy within the next few years
Q.2 (a) If you were to buy a new home, what style of home would you most prefer? (CHECK ONE ONLY)	☐1. bungalow (single-level) ☐2. bi-level ☐3. split level ☐4. 2-storey ☐5. other ______________
(b) If you were to buy a new home, what type of home would you most prefer? (CHECK ONE ONLY)	☐1. a single-detached home ☐2. a semi-detached home or duplex ☐3. a townhome ☐4. an apartment condominium ☐5. other ______________
Q.3 If you were to buy a new home, how many bedrooms would you need?	WRITE-IN NUMBER OF BEDROOMS ▷ ☐
Q.4 If you were to buy a new home, (a) how many full bathrooms (3-piece) would you need?	WRITE-IN NUMBER OF FULL BATHS ▷ ☐
(b) how many ½ baths (2-piece) would you need?	WRITE-IN NUMBER OF ½ BATHS ▷ ☐
Q.5 Approximately how large (square footage) would you need your next home to be?	WRITE-IN APPROXIMATE SIZE ▷ ☐,☐0 0 SQ. FT. (NOT INCLUDING BASEMENT)
Q.6 What is the maximum price you could afford to pay for a new home at the present time?	WRITE-IN ▷ $ ☐ ☐ ☐ , 0 0 0 . 0 0

1/16

Q.7 If you were deciding whether to buy a new townhouse, how important would the following things be? Please rate the importance of these things using the scale from 1 to 7. A "1" means not at all important or that this aspect of a new home would not enter into your decision to buy or not buy. A "7" means absolutely crucial or that if this aspect was not as you wanted it, you would not buy that home.

	HOW IMPORTANT?						
a. the style of the home, that is, whether it's a bungalow, bi-level, 2-storey, etc. (CIRCLE NUMBER)	1 not at all impor-tant	2 of very little impor-tance	3 of little impor-tance	4 fairly impor-tant	5 very impor-tant	6 very great impor-tance	7 absolutely crucial
b. the size of the backyard	1	2	3	4	5	6	7
c. the size of the front yard	1	2	3	4	5	6	7
d. how many houses are attached in a row, that is 4, 6, 10, etc. attached houses	1	2	3	4	5	6	7
e. whether parking for your car is right in front of your house or located slightly further away	1	2	3	4	5	6	7
f. whether homes are attached on two or three sides	1	2	3	4	5	6	7
g. the number of parking spaces provided for visitor parking	1	2	3	4	5	6	7
h. whether or not there is a tot lot provided for the project	1	2	3	4	5	6	7
i. the total size (square footage) of the house	1	2	3	4	5	6	7
j. being able to save money on the total price of the house	1	2	3	4	5	6	7
k. features on the front of the house such as a bay window, chimney chase, or brick accent material, etc.	1	2	3	4	5	6	7
l. features on the front of the house such as decorative shutters, window grills, or other decorative materials	1	2	3	4	5	6	7
m. the width of the house, that is if it's 15 or 25 feet wide, for example.	1 not at all impor-tant	2 of very little impor-tance	3 of little impor-tance	4 fairly impor-tant	5 very impor-tant	6 very great impor-tance	7 absolutely crucial

INSTRUCTIONS FOR RANKING QUESTIONS

A number of questions in this questionnaire ask you to rank in order of your preference some different designs and layouts of a home. The alternatives are in most cases described by a simple diagram and a verbal description.

The alternatives only focus on a limited number of characteristics of a home. In order to rank the alternatives, assume that the things not shown or described about the home are to your liking. For example, if the alternatives show different kitchen layouts, assume that the rest of the home, its location, backyard space, style of home, etc. are to your liking.

Some symbols may be used in the diagrams. These are always explained at the bottom of the page.

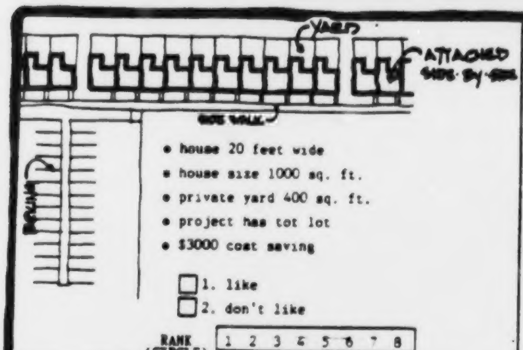
You may find it easiest to rank the alternatives in order of your preference if you first go through and check off those you like and those you don't like and then go back and rank the ones you liked and rank the ones you didn't like. If for example, there were 8 alternative or different homes to rank, you may find 3 that you like and 5 that you don't like. The three that you liked, you would rank using the numbers 1, 2, 3 where "1" would be the most liked, "2" the second most liked and "3" the third most liked. The five that you didn't like would be ranked using the numbers 4, 5, 6, 7, 8 where a "4" would be given to the fourth most liked alternative and so on. The very least liked alternative would be ranked "8".

PLEASE NOTE: Where the size of the home is shown in square feet, this only includes the developed, liveable area of a home. It does not include the basement, although all the alternative homes do have basements.

The cost savings associated with an alternative should be considered as an amount that would be taken off the maximum price you could afford to pay for a new home.

Try to avoid giving more than one alternative the same rank.

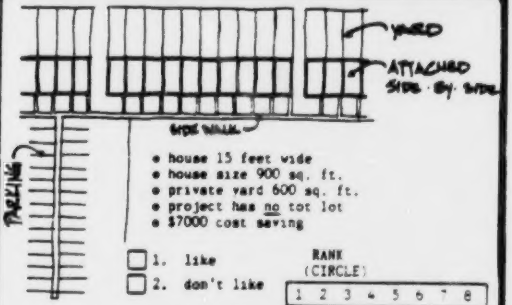
Q.8 Shown below are blocks in 8 different townhouse developments. Each development has 60 homes but the diagrams show only a typical block. The developments differ in how units are attached, shape, parking arrangements, common area, private open space, house size and cost savings. Please rank the different developments in order of your preference using the numbers from 1 through 8, where "1" means the most liked and "8" means the least liked. Try to avoid giving more than one development the same rank. Assume that the things not shown about the homes, the style, appearance, location, interior arrangement, etc., are to your liking. Consider the cost saving as an amount which would be taken off the maximum price you could afford.


YARD
ATTACHED SIDE-BY-SIDE
SIDE WALK
PARKING

- house 20 feet wide
- house size 1000 sq. ft.
- private yard 400 sq. ft.
- project has tot lot
- $3000 cost saving

☐ 1. like
☐ 2. don't like

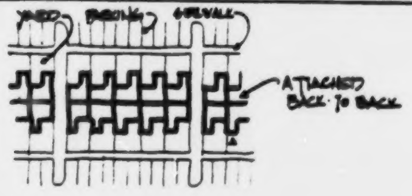
RANK (CIRCLE) 1 2 3 4 5 6 7 8


YARD
ATTACHED SIDE-BY-SIDE
SIDE WALK
PARKING

- house 15 feet wide
- house size 900 sq. ft.
- private yard 600 sq. ft.
- project has no tot lot
- $7000 cost saving

☐ 1. like
☐ 2. don't like

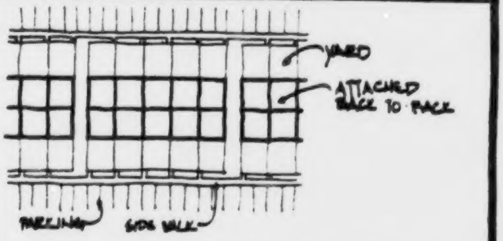
RANK (CIRCLE) 1 2 3 4 5 6 7 8


YARD
PARKING
SIDEWALK
ATTACHED BACK-TO-BACK

- house 20 feet wide
- house size 800 sq. ft.
- private yard 400 sq. ft.
- project has tot lot
- $7000 cost saving

☐ 1. like
☐ 2. don't like

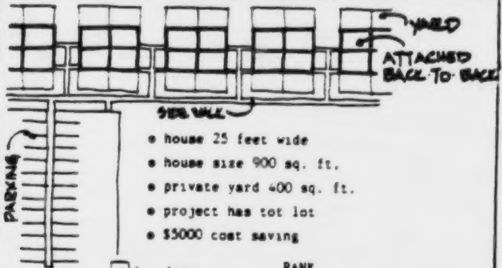
RANK (CIRCLE) 1 2 3 4 5 6 7 8


YARD
ATTACHED BACK TO BACK
PARKING
SIDE WALK

- house 25 feet wide
- house size 1100 sq. ft.
- private yard 600 sq. ft.
- project has no tot lot
- $3000 cost saving

☐ 1. like
☐ 2. don't like

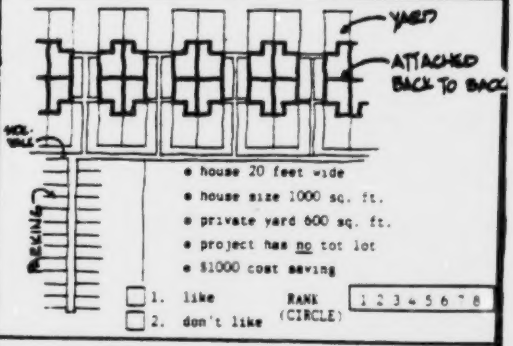
RANK (CIRCLE) 1 2 3 4 5 6 7 8


YARD
ATTACHED BACK-TO-BACK
SIDE WALK
PARKING

- house 25 feet wide
- house size 900 sq. ft.
- private yard 400 sq. ft.
- project has tot lot
- $5000 cost saving

☐ 1. like
☐ 2. don't like

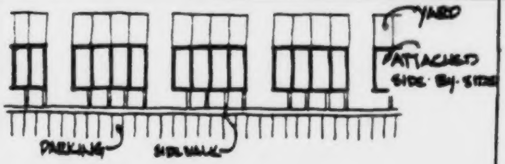
RANK (CIRCLE) 1 2 3 4 5 6 7 8


YARD
ATTACHED BACK TO BACK
SIDE-WALK
PARKING

- house 20 feet wide
- house size 1000 sq. ft.
- private yard 600 sq. ft.
- project has no tot lot
- $1000 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

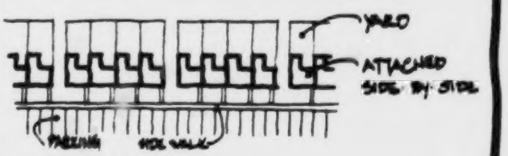

YARD
ATTACHED SIDE-BY-SIDE
PARKING
SIDEWALK

- houses 15 feet wide
- house size 1100 sq. ft.
- private yard 400 sq. ft.
- project has tot lot
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

1/37


YARD
ATTACHED SIDE-BY-SIDE
PARKING
SIDE WALK

- house 20 feet wide
- house size 800 sq. ft.
- private yard 600 sq. ft.
- project has no tot lot
- $4000 cost saving

☐ 1. like
☐ 2. don't like

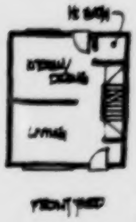
RANK (CIRCLE) 1 2 3 4 5 6 7 8

1/45

Q.9 How important would the following aspects of the interior layout or arrangement of a home be to you, if you were considering buying a new home? Please rate the importance of the items listed below using the scale from 1 to 7, where "1" means not at all important or that this aspect of a new home would not enter into your decision to buy or not buy and where "7" means absolutely crucial or that if this aspect was not to your liking, you would not buy that home.

	HOW IMPORTANT?						
a. the size of the living room	1 not at all important	2 of very little importance	3 of little importance	4 fairly important	5 very important	6 very great importance	7 absolutely crucial
b. the size of the eating or dining area	1	2	3	4	5	6	7
c. the size of the master bedroom	1	2	3	4	5	6	7
d. the size of secondary bedrooms	1	2	3	4	5	6	7
e. the number of bedrooms	1	2	3	4	5	6	7
f. the amount of kitchen storage space	1	2	3	4	5	6	7
g. the layout of the kitchen ("L" shape, "U" shape, etc.)	1	2	3	4	5	6	7
h. a window in the kitchen work area	1	2	3	4	5	6	7
i. a window in the eating/dining area	1	2	3	4	5	6	7
j. a ½ bath on the main floor if a full bath was on another floor	1	2	3	4	5	6	7
k. the location of the stairway (near an entry or more centrally located)	1	2	3	4	5	6	7
l. an entrance hall or foyer off the main entry	1	2	3	4	5	6	7
m. a main entry leading directly to the living room	1	2	3	4	5	6	7
n. the location of the eating area (with the kitchen or a separate dining area)	1	2	3	4	5	6	7
o. whether the 2nd entry is a sliding patio door or a hinged door	1	2	3	4	5	6	7
p. the potential to develop the basement into a living or sleeping area	1 not at all important	2 of very little importance	3 of little importance	4 fairly important	5 very important	6 very great importance	7 absolutely crucial

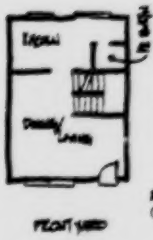
0.10 The diagrams on this page show some variations in interior layout and design. Only the main floor is shown; bedrooms and a full bath would be on the second floor. Please rank the different layouts from most liked to least liked using the numbers from 1 through 8, where "1" means the most liked and "8" means the least liked. Try to avoid giving more than one layout the same rank. Assume that things not shown about the house are to your liking. Consider the cost savings to be an amount which would be taken off the maximum price you could afford.


½ BATH
KITCHEN/DINING
LIVING
FRONT YARD

- 900 square foot 2-storey
- house 20 feet wide
- ½ bath
- $4000 cost saving

☐ 1. like
☐ 2. don't like

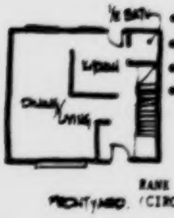
RANK (CIRCLE) 1 2 3 4 5 6 7 8


KITCHEN
½ BATH
DINING/LIVING
FRONT YARD

- 1100 square foot 2-storey
- house 20 feet wide
- ½ bath
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

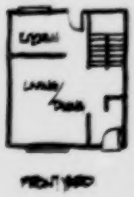
RANK (CIRCLE) 1 2 3 4 5 6 7 8


½ BATH
KITCHEN
DINING/LIVING
FRONT YARD

- 1100 square foot 2-storey
- house 25 feet wide
- ½ bath
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

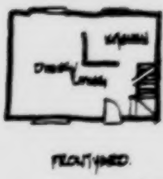
RANK (CIRCLE) 1 2 3 4 5 6 7 8


KITCHEN
LIVING/DINING
FRONT YARD

- 900 square foot 2-storey
- house 20 feet wide
- no ½ bath
- $5500 cost saving

☐ 1. like
☐ 2. don't like

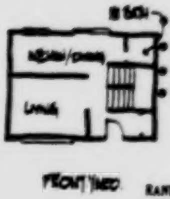
RANK (CIRCLE) 1 2 3 4 5 6 7 8


KITCHEN
DINING/LIVING
FRONT YARD

- 900 square foot 2-storey
- house 25 feet wide
- no ½ bath
- $5500 cost saving

☐ 1. like
☐ 2. don't like

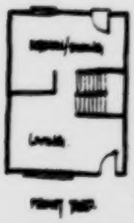
RANK (CIRCLE) 1 2 3 4 5 6 7 8


½ BATH
KITCHEN/DINING
LIVING
FRONT YARD

- 900 square foot 2-storey
- house 25 feet wide
- ½ bath
- $4000 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

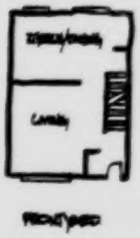

KITCHEN/DINING
LIVING
FRONT YARD

- 1100 square foot 2-storey
- house 20 feet wide
- no ½ bath
- $1500 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

1/69


KITCHEN/DINING
LIVING
FRONT YARD

- 1100 square foot 2-storey
- house 20 feet wide
- no ½ bath
- $1500 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

1/[illegible]

LEGEND: WINDOW —═— DOOR —⌒— PATIO DOOR —═—

DUP ①-④ 2

Q.11 Described below are 4 different homes that vary in terms of the space given to certain rooms. Please rank them from most liked to least liked using the numbers from 1 to 4, where "1" means the most liked and "4" means the least liked. Try to avoid giving more than one home the same rank.

DESCRIPTION

- 1100 square foot bungalow
- large living room (200 square feet)
- small eating/dining area (50 square feet)
- 2 large bedrooms (200 square feet each)

☐ 1. like
☐ 2. don't like
RANK (CIRCLE) 1 2 3 4

- 1100 square foot 2-storey
- large living room (200 square feet)
- small eating/dining area (50 square feet)
- 1 large bedroom (200 square feet) and 2 small bedrooms (100 square feet each)

☐ 1. like
☐ 2. don't like
RANK (CIRCLE) 1 2 3 4

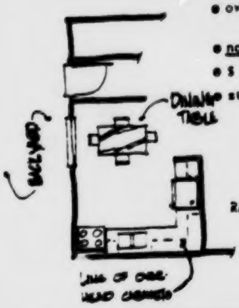
- 1100 square foot bungalow
- small living room (150 square feet)
- large eating/dining area (100 square feet)
- 1 large bedroom (200 square feet) and 2 small bedrooms (100 square feet each)

☐ 1. like
☐ 2. don't like
RANK (CIRCLE) 1 2 3 4

- 1100 square foot 2-storey
- small living room (150 square feet)
- large eating/dining area (100 square feet)
- 2 large bedrooms (200 square feet each)

☐ 1. like
☐ 2. don't like
RANK (CIRCLE) 1 2 3 4

Q.12 The 8 diagrams on this page show different types of kitchen arrangements. The differences basically involve the layout of the work area, the location of the eating/dining area, whether storage space is provided by overhead cupboards or a pantry and whether the completion of that storage space is included in the price or done by the buyer at a saving of $500 off the price of the home. Please rank the different kitchen arrangements from most liked to least liked using the numbers from 1 through 8, where "1" means the most liked and "8" means the least liked. Try to avoid giving more than one arrangement the same rank. Assume that the other things not shown are to your liking.

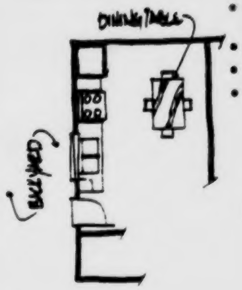

DINING TABLE
BACKYARD
LINE OF OVER-HEAD CABINETS

- overhead cupboards installed
- no pantry
- $ 0 cost saving
- styled cupboard doors

☐ 1. like
☐ 2. don't like

RANK (CIRCLE)

1 2 3 4 5 6 7 8

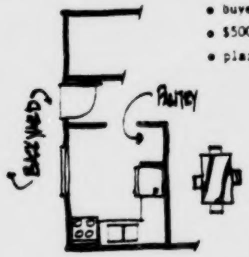

DINING TABLE
BACKYARD

- overhead cupboards not provided
- no pantry
- $500 cost saving
- plain cupboard doors

☐ 1. like
☐ 2. don't like

RANK (CIRCLE)

1 2 3 4 5 6 7 8

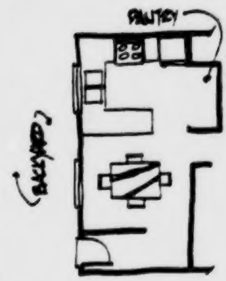

PANTRY
BACKYARD

- overhead cupboards not provided
- buyer completion of pantry
- $500 cost saving
- plain cupboard doors

☐ 1. like
☐ 2. don't like

RANK (CIRCLE)

1 2 3 4 5 6 7 8

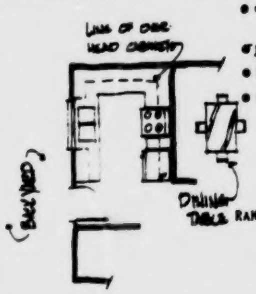

PANTRY
BACKYARD

- overhead cupboards not provided
- buyer completion of pantry
- $500 cost saving
- styled cupboard doors

☐ 1. like
☐ 2. don't like

RANK (CIRCLE)

1 2 3 4 5 6 7 8

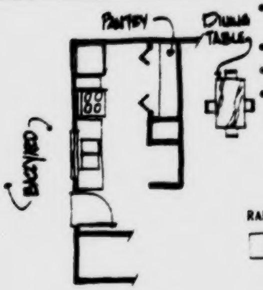

LINE OF OVER-HEAD CABINETS
DINING TABLE
BACKYARD

- overhead cupboards installed
- no pantry
- $ 0 cost saving
- plain cupboard doors

☐ 1. like
☐ 2. don't like

RANK (CIRCLE)

1 2 3 4 5 6 7 8

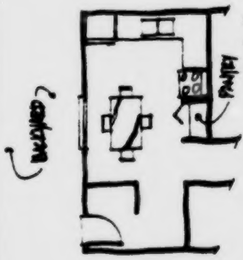

PANTRY
DINING TABLE
BACKYARD

- overhead cupboards not provided
- completed pantry
- $ 0 cost saving
- plain cupboard doors

☐ 1. like
☐ 2. don't like

RANK (CIRCLE)

1 2 3 4 5 6 7 8


PANTRY
BACKYARD

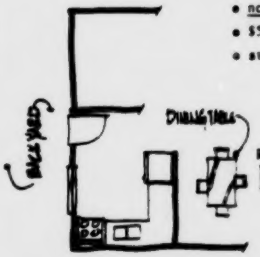
- overhead cupboards not provided
- completed pantry
- $ 0 cost saving
- styled cupboard doors

☐ 1. like
☐ 2. don't like

RANK (CIRCLE)

1 2 3 4 5 6 7 8

2/2


DINING TABLE
BACKYARD

- overhead cupboards not provided
- no pantry
- $500 cost saving
- styled cupboard doors

☐ 1. like
☐ 2. don't like

RANK (CIRCLE)

1 2 3 4 5 6 7 8

2/[illegible]

LEGEND: RANGE ▣ REFRIGERATOR ☐ SINK ▢▢ WINDOW —

Q.13 How important would the following construction-related aspects of a home be to you if you were considering buying a new home? Please rate the importance of the following things using the scale from "1" to "7", where "1" means not at all important or that this aspect of a new home would not enter into your decision to buy or not buy and "7" means absolutely crucial or that if this aspect was not to your liking you would not buy that home.

HOW IMPORTANT?

	1	2	3	4	5	6	7
a. the quality of painted surfaces	not at all impor-tant	of very little impor-tance	of little impor-tance	fairly impor-tant	very impor-tant	very great impor-tance	absolutely crucial
b. the quality of carpeting							
c. the quality of linoleum							
d. workmanship							
e. insulation quality							
f. the quality of light fixtures							
g. the quality of closet doors							
h. the quality of kitchen cabinets							
i. the quality of soundproofing between adjacent homes	not at all impor-tant	of very little impor-tance	of little impor-tance	fairly impor-tant	very impor-tant	very great impor-tance	absolutely crucial

2/38

Q.14 On this page 8 different homes are described. These homes differ in the quality of insulation, soundproofing & whether or not certain things are left for buyer completion in exchange for a cost saving in the price of the home. Please rank the different homes from most liked to least liked using the numbers from 1 through 8, where "1" means the most liked and "8" means the least liked. Try to avoid giving more than one home the same rank. Assume that things not described about the home are to your liking.

DESCRIPTION

- interior of the home is not painted
- light fixtures & closet doors are installed
- carpet & lino are not included
- soundproofing is standard
- insulation is standard
- $2300 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

DESCRIPTION

- interior of the home is not painted
- light fixtures & closet doors are installed
- all floors are covered with linoleum
- soundproofing is standard
- insulation is upgraded
- $300 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

- interior of the home is not painted
- light fixtures & closet doors are not included
- carpet & lino are not included
- soundproofing is upgraded
- insulation is standard
- $2500 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

- interior of the home is not painted
- light fixtures & closet doors are not included
- carpet & lino are included
- soundproofing is upgraded
- insulation is upgraded
- $200 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

- interior of the home is painted
- light fixtures & closet doors are not included
- all floors are covered with linoleum
- soundproofing is upgraded
- insulation is standard
- $500 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

- interior of the home is painted
- light fixtures & closet doors are installed
- carpet & lino are not included
- soundproofing is standard
- insulation is upgraded
- $300 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

- interior of the home is painted
- light fixtures & closet doors are installed
- all floors are covered with linoleum
- soundproofing is standard
- insulation is standard
- $ 0 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

- interior of the home is painted
- light fixtures & closet doors are not included
- carpet & lino are not installed
- soundproofing is upgraded
- insulation is upgraded
- $500 cost saving

☐ 1. like
☐ 2. don't like

RANK (CIRCLE) 1 2 3 4 5 6 7 8

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2/54

These last few questions are about your present home & the people that live in your home. All answers are confidential.

Q.15 What kind of a home do you live in at the present time?

☐ 1. single-detached house
☐ 2. semi-detached or duplex
☐ 3. townhouse
☐ 4. apartment
☐ 5. other ____________________

Q.16 How long have you lived at your present address

WRITE-IN TO CLOSEST YEAR ▷ ☐☐ YEARS

Q.17 Do you rent or own your home?

☐ 1. rent
☐ 2. own

Q.18 **IF YOU RENT:** Approximately how much do you pay in monthly rent?

WRITE-IN ▷ $ ☐,☐☐☐ .00

IF YOU OWN: Approximately how much are your monthly mortgage payments (principal, interest, taxes)?

WRITE-IN ▷ $ ☐,☐☐☐ .00
OR ☐ NO MORTGAGE

Q.19 How many people, including yourself live in your home?

WRITE-IN ▷ ☐ PERSONS

Q.20 Do you have any children living with you?

☐ 1. yes
☐ 2. no

IF YES: How many children live with you?

WRITE-IN ▷ ☐ CHILDREN

Q.21 What is your present marital status?

☐ 1. single
☐ 2. married
☐ 3. separated/divorced
☐ 4. other

Q.22 **IF APPLICABLE:** What is the age of your spouse?

WRITE-IN ▷ ☐☐ YEARS

What is your age?

WRITE-IN ▷ ☐☐ YEARS

Q.23 Approximately, how much was the total before tax income of all the members of your household last year?

WRITE-IN ▷ $ ☐☐☐, 000.00

Did this include income from more than one person?

☐ 1. yes
☐ 2. no

Q.24 What is your sex?

☐ 1. male
☐ 2. female

Q.25 **IF APPLICABLE:** Did you answer any of this questionnaire with your spouse?

☐ 1. yes
☐ 2. no

Q.26 Do you have any comments you would like to make?

____

____

THANK YOU VERY MUCH FOR YOUR TIME & CO-OPERATION IN HELPING US WITH THIS STUDY.
PLEASE USE THE STAMPED ENVELOPE PROVIDED, TO RETURN YOUR COMPLETED QUESTIONNAIRE.

2/80

TOWNHOUSE UNITS

SUMMARY OF QUESTIONNAIRE RESULTS

		TYPE 1 [36%]	TYPE 2 [26%]	TYPE 3 [20%]	TYPE 4 [18%]	TOTAL [153]
Q.1 home buying intentions:	1. within 6 months	2%	5%	7%	11%	5%
	2. within 12 months	26%	15%	13%	26%	21%
	3. no purchase intentions	72%	80%	80%	63%	74%
Q.2 (a) preferred unit style:	1. bungalow	27%	20%	23%	32%	26%
	2. bi-level	6%	20%	23%	14%	14%
	3. split level	27%	28%	33%	21%	28%
	4. 2-storey	35%	33%	20%	32%	31%
	5. other	6%	0%	0%	0%	2%
(b) preferred unit type:	1. single-detached	95%	95%	9%	86%	92%
	2. semi/duplex	2%	3%	3%	4%	3%
	3. townhouse	2%	3%	7%	7%	4%
	4. other	2%	0%	0%	4%	1%
Q.3 bdrms. req'd.:	1. two	7%	0%	0%	14%	5%
	2. three	75%	78%	87%	68%	77%
	3. four	18%	22%	13%	18%	18%
Q.4 (a) full baths req'd.:	1. one	78%	67%	67%	54%	68%
	2. two	22%	33%	33%	46%	32%
(b) ½ baths req'd.:	1. none	0%	8%	20%	11%	8%
	2. one	93%	78%	63%	82%	81%
	3. two	7%	15%	17%	7%	11%
Q.5 sq. ft'g. req'd.:	1. under 1000 sq. ft.	4%	3%	10%	22%	8%
	2. 1050-1150 sq. ft.	6%	10%	17%	11%	10%
	3. 1150-1250 sq. ft.	24%	25%	24%	19%	23%
	4. 1250-1350 sq. ft.	18%	10%	3%	19%	13%
	5. 1350-1450 sq. ft.	11%	5%	10%	4%	8%
	6. 1450 sq. ft. or more	38%	48%	35%	26%	38%

		TYPE 1	TYPE 2	TYPE 3	TYPE 4	TOTAL
Q.6 max. affordable price:	1. under $65,000	6%	11%	17%	19%	12%
	2. $65–$70,000	6%	16%	7%	19%	11%
	3. $70–$75,000	22%	16%	10%	15%	17%
	4. $75–$80,000	8%	11%	10%	8%	9%
	5. $80–$85,000	22%	8%	13%	4%	13%
	6. $85–$90,000	2%	3%	7%	4%	4%
	7. $90–$95,000	10%	8%	20%	4%	10%
	8. $95–$100,000	2%	0%	0%	8%	2%
	9. $100,000 or more	24%	27%	17%	19%	22%
Q.7 average importance rating [7 = hi]:						
	1. saving money on price	5.6	5.9	5.6	6.1	5.8
	2. how units are attached	6.1	5.6	5.0	5.4	5.6
	3. total unit size	5.6	5.4	5.1	5.2	5.4
	4. location of parking	5.3	5.4	4.4	5.3	5.1
	5. number of units attached	5.0	4.9	5.0	4.9	5.0
	6. unit style	4.8	4.6	4.4	4.9	4.7
	7. backyard size	4.9	4.6	4.4	4.7	4.7
	8. unit width	4.8	4.7	4.8	4.5	4.7
	9. amount of visitor pkg.	4.4	4.7	4.4	4.5	4.5
	10. structural facade features	4.3	4.2	4.1	4.2	4.2
	11. provision of tot lot	4.0	3.9	3.9	4.2	4.0
	12. front yard size	3.6	3.3	3.7	3.5	3.5
	13. decorative facade features	3.4	3.9	3.9	3.3	3.5
Q.8 average preference rankings [8 = hi]:						
	a.1 [see questionnaire for description]	6.0	5.2	4.4	4.9	5.3
	a.2 [numbered by column]	2.5	2.5	4.2	4.2	3.1
	a.3	2.9	3.4	5.1	3.4	3.5
	a.4	7.0	6.8	4.2	4.8	6.0
	a.5	4.9	4.4	2.0	5.6	4.3
	a.6	4.0	4.2	4.5	3.5	4.1
	a.7	3.3	3.4	6.7	3.9	4.1
	a.8	5.0	4.1	4.8	6.6	5.0
Q.9 average importance rating [7 = hi]:						
	1. ½ bath on main flr.	5.6	5.8	5.3	5.8	5.6
	2. kitchen storage space	5.3	5.7	5.9	5.6	5.6
	3. number of bdrms.	5.4	5.3	5.2	5.5	5.3
	4. bsmt. dev't. potential	5.2	5.4	5.8	5.0	5.3
	5. window in kitchen	5.1	5.2	5.9	5.4	5.3
	6. living room size	5.1	5.3	5.2	5.3	5.2
	7. mstr. bdrms. size	4.9	5.3	5.0	5.3	5.1
	8. eating area size	4.8	5.5	4.8	5.0	5.0
	9. eating area location	4.5	5.0	4.7	5.1	4.8
	10. kitchen layout	4.2	4.5	4.7	5.1	4.5
	11. main entry foyer	4.2	4.6	4.9	4.5	4.5
	12. window in eating area	4.1	4.4	4.6	4.6	4.4
	13. secondary bdrm. size	4.3	4.6	4.1	4.4	4.3
	14. second entry type	3.7	4.2	4.6	4.0	4.1
	15. stairway location	3.6	3.7	4.4	4.4	3.9
	16. main entry to living room	3.1	3.6	4.0	4.1	3.6

		TYPE 1	TYPE 2	TYPE 3	TYPE 4	TOTAL
Q.10	average preference rankings [8 = hi]:					
	a.1 [see questionnaire for description]	5.1	5.0	5.3	6.7	5.4
	a.2	7.0	6.3	6.7	5.6	6.5
	a.3	3.0	3.3	3.3	3.8	3.3
	a.4	3.5	3.1	3.5	3.1	3.3
	a.5	6.2	5.9	5.3	4.9	5.7
	a.6	2.8	3.5	3.7	3.7	3.3
	a.7	4.8	5.6	5.0	5.5	5.2
	a.8	3.9	3.4	3.7	3.5	3.7
Q.11	average preference ranking [4 = hi]:					
	a.1 [see questionnaire for description]	2.1	1.0	1.0	2.3	2.1
	a.2	3.2	3.2	2.9	3.0	3.1
	a.3	2.9	3.0	3.0	2.5	2.9
	a.4	1.8	1.7	2.1	2.4	1.9
Q.12	average preference ranking [8 = hi]:					
	a.1 [see questionnaire for description]	6.0	6.6	6.2	4.8	6.0
	a.2	3.8	3.1	3.7	4.8	3.8
	a.3	5.8	6.1	5.4	5.4	5.7
	a.4	4.5	5.1	4.2	3.3	4.4
	a.5	2.8	2.2	2.6	4.0	2.8
	a.5	6.1	5.3	6.4	5.7	5.9
	a.6	3.8	4.1	3.0	4.5	3.9
	a.7	3.1	2.6	3.5	3.7	3.1
	a.8	3.4	2.6	3.4	4.4	3.3
Q.13	average importance rating [7 = hi]:					
	1. soundproofing quality	6.7	6.6	6.7	6.8	6.7
	2. insulation quality	6.3	6.4	6.4	6.5	6.4
	3. workmanship	6.2	6.2	6.1	6.5	6.2
	4. carpet quality	5.4	5.7	5.5	5.6	5.5
	5. lino quality	5.0	5.7	5.1	5.6	5.3
	6. paint quality	4.8	5.5	4.8	5.7	5.2
	7. kitchen cabinet quality	5.0	5.4	5.1	5.4	5.2
	8. closet door quality	4.7	5.1	4.6	4.8	4.8
	9. light fixture quality	4.4	4.8	4.2	4.7	4.5

			TYPE 1	TYPE 2	TYPE 3	TYPE 4	TOTAL
Q.14	average preference ranking [8 = hi]:						
	a.1	[see questionnaire for description]	3.4	2.6	3.4	4.4	3.3
	a.2		4.1	2.0	4.6	2.8	3.4
	a.3		4.3	5.1	3.2	4.1	4.3
	a.4		3.0	6.8	2.4	6.0	4.4
	a.5		3.6	5.0	4.0	4.6	4.2
	a.6		6.6	5.0	6.4	4.8	5.8
	a.7		4.4	4.0	5.1	4.8	4.5
	a.8		6.0	4.3	6.0	4.6	5.3
Q.15	present dwelling:	1. detached house	4%	5%	3%	7%	5%
		2. semi-detached	6%	8%	3%	15%	7%
		3. row house	90%	87%	94%	78%	88%
Q.16	length of residence:	1. one year or less	95%	90%	93%	78%	90%
		2. two years	5%	3%	3%	15%	6%
		3. three years	0%	7%	4%	7%	4%
Q.17	present tenure:	1. rent	2%	5%	4%	11%	5%
		2. own	98%	95%	96%	89%	95%
Q.18	average monthly mortgage/payments:						
		1. under $450	4%	0%	0%	9%	4%
		2. $450-$550	15%	19%	30%	17%	20%
		3. $550-$650	12%	11%	22%	22%	15%
		4. $650-$750	31%	33%	22%	13%	27%
		5. $750-$850	27%	25%	11%	13%	21%
		6. $850-$950	6%	8%	0%	17%	7%
		7. $950-$1050	4%	0%	15%	4%	5%
		8. $1050 or more	2%	3%	0%	0%	1%
Q.19	household size:	1. one person	6%	0%	0%	7%	3%
		2. two	44%	45%	40%	54%	45%
		3. three	30%	28%	40%	21%	30%
		4. four	13%	25%	17%	18%	18%
		5. five or more	7%	3%	3%	0%	4%
Q.20	number of children:	1. none	47%	43%	47%	46%	46%
		2. one	29%	25%	27%	39%	29%
		3. two	15%	33%	23%	14%	21%
		4. three or more	9%	0%	3%	0%	4%

				TYPE 1	TYPE 2	TYPE 3	TYPE 4	TOTAL
Q.21	marital status:	1.	single	2%	0%	7%	4%	3%
		2.	married	86%	85%	83%	82%	84%
		3.	separated/divorced	11%	13%	10%	11%	11%
		4.	other	2%	3%	0%	4%	2%
Q.22	age of spouse:	1.	under 25 yrs.	33%	36%	40%	35%	36%
		2.	25–29	38%	36%	16%	35%	33%
		3.	30–34	18%	15%	20%	9%	16%
		4.	35–39	2%	6%	8%	9%	6%
		5.	40–44	7%	3%	4%	4%	5%
		6.	45–49	0%	3%	4%	4%	2%
		7.	50–54	0%	0%	8%	4%	2%
		8.	55 yrs. or older	2%	0%	0%	0%	1%
	age of respondent:	1.	under 25 yrs.	25%	37%	28%	18%	27%
		2.	25–29	43%	37%	35%	43%	40%
		3.	30–34	15%	16%	14%	18%	16%
		4.	35–39	8%	5%	7%	7%	7%
		5.	40–44	6%	3%	3%	0%	3%
		6.	45–49	2%	3%	0%	7%	8%
		7.	50–54	0%	0%	14%	0%	3%
		8.	55 yrs. or older	2%	0%	0%	7%	2%
Q.23	household income:	1.	under $20,000	13%	19%	11%	37%	19%
		2.	$20–$25,000	15%	11%	19%	15%	15%
		3.	$25–$30,000	17%	19%	11%	11%	15%
		4.	$30–$35,000	30%	14%	22%	11%	20%
		5.	$35–$40,000	9%	14%	11%	4%	10%
		6.	$40–$45,000	9%	14%	7%	4%	9%
		7.	$45–$50,000	2%	6%	4%	15%	6%
		8.	$50,000 or more	6%	3%	15%	4%	7%
	more than one income:	1.	yes	59%	51%	69%	48%	57%
		2.	no	41%	49%	31%	52%	43%
Q.24	respondents' sex:	1.	male	56%	53%	67%	64%	59%
		2.	female	44%	47%	33%	36%	41%
Q.25	answered with spouse:	1.	yes	57%	46%	43%	36%	47%
		2.	no	43%	54%	57%	64%	53%
A.	respondent type:	1.	Edmonton recent buyer	35%	50%	60%	54%	47%
		2.	Calgary recent buyer	66%	50%	40%	46%	53%

A.1.4 BUILDER QUESTIONNAIRE

STRATEGICS
Strategic Development Services Limited

D - 827 Fifth Avenue NW
Calgary, Alberta T2N 0R5
(403) 283-6927

8302–108A Avenue
Edmonton, Alberta
Canada, T5H 1E8
(403) 429-0044

INSTRUCTIONS: Please read each question carefully before answering. In most cases your answer can be noted by checking or circling a numbered response. Some questions have a space for a written response.

Your assistance in this important study is greatly appreciated. Please use the envelope provided to mail your completed questionnaire back to us. Postage has already been provided. All answers will be kept in the strictest confidence.

It is important that you return your completed questionnaire by December 10 , 1982.

NOTE: IF YOUR COMPANY OPERATES DIVISIONS IN OTHER LOCATIONS, ANSWER THE FOLLOWING QUESTIONS ONLY FOR YOUR DIVISION.

Q.1 Does your division build primarily for the rental or ownership markets?

☐ 1. primarily rental
☐ 2. primarily ownership
☐ 3. other ________________
____

Q.2 Did you start any of the following types of units for the ownership market during the past 12 months?

SINGLE-DETACHED ▷ ☐ 1. yes ☐ 2. no
SEMI-DETACHED ▷ ☐ 1. yes ☐ 2. no
TOWNHOUSE CONDO ▷ ☐ 1. yes ☐ 2. no

Q.3 In which price ranges did most of your sales occur during the past 12 months?

UNDER $70,000 ▷ ☐ 1.
$70–$80,000 ▷ ☐ 2.
$80–$90,000 ▷ ☐ 3.
OVER $90,000 ▷ ☐ 4.

Q.4 Approximately, what percentage of your sales during the past 12 months were financed under the Alberta Family Home Purchase Program?

WRITE-IN ▷ ☐☐☐ %

Q.5 IF YOU STARTED ANY SINGLE-DETACHED UNITS DURING THE PAST 12 MONTHS:

(a) What lot sizes (frontage) were most of your single-detached units built on?

UNDER 30 FEET ▷ ☐ 1.
30–40 FEET ▷ ☐ 2.
40–50 FEET ▷ ☐ 3.
OVER 50 FEET ▷ ☐ 4.

(b) Of which styles were most of your single-detached units?

BUNGALOW ▷ ☐ 1.
BI-LEVEL ▷ ☐ 2.
SPLIT-LEVEL ▷ ☐ 3.
TWO-STOREY ▷ ☐ 4.

Q.6 How large were most of the units you built for the ownership market during the past 12 months (total developed area only)?

UNDER 900 SQ.FT. ▷ ☐ 1.
900–1200 SQ.FT. ▷ ☐ 2.
1200–1500 SQ.FT. ▷ ☐ 3.
OVER 1500 SQ.FT. ▷ ☐ 4.

Q.7 Assuming identical lot costs, styles, specs, etc. what would the approximate difference in direct construction costs be between:

(1) A 1100 SQ.FT. SINGLE-DETACHED HOUSE
A 1000 SQ.FT. SINGLE-DETACHED HOUSE?
WRITE-IN ▷ $☐.☐☐☐

(2) A 1100 SQ.FT. SINGLE-DETACHED HOUSE
A 900 SQ.FT. SINGLE-DETACHED HOUSE?
WRITE-IN ▷ $☐.☐☐☐

(3) A 1100 SQ.FT. SINGLE-DETACHED HOUSE
A 800 SQ.FT. SINGLE-DETACHED HOUSE?
WRITE-IN ▷ $☐.☐☐☐

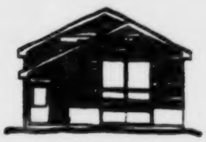
Q.8 What are the major constraints preventing you from building smaller homes for the ownership market? [CHECK ALL THAT APPLY]

☐ 1. no constraints
☐ 2. buyer acceptance
☐ 3. building regulations & codes
☐ 4. land-use bylaws
☐ 5. architectural controls
☐ 6. other ________________

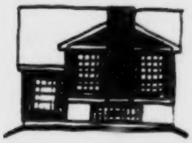
Q.9 The diagrams below show different variations in facade treatment, or how a house appears from the street. In all other aspects, total size, lot costs, interior specs, etc. the houses are identical. Please compare the simpler facades to the upgraded facades and indicate the approximate difference in direct construction costs between facade treatments.

COMPARISON ONE

[A].



[B]



- both 900 SQ.FT. BI-LEVELS
- both 25 FT. WIDE

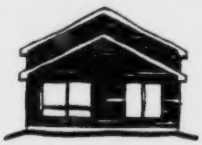
(1) Approximate direct construction costs for chimney chase only (no fireplace) on (B)?
WRITE-IN ▷ $☐.☐☐☐

(2) Approximate direct construction costs for decorative window grills and shutters on (B)?
WRITE-IN ▷ $☐.☐☐☐

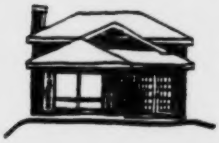
(3) Approximate total difference in direct construction costs between (A) and (B)?
WRITE-IN ▷ $☐.☐☐☐

COMPARISON TWO

[A]



[B]



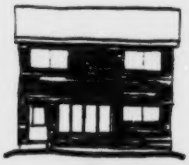
- both 900 SQ.FT. SPLIT LEVELS
- both 25 FT. WIDE

(1) Approximate difference in direct construction costs between roof (B) and roof (A)?
WRITE-IN ▷ $☐.☐☐☐

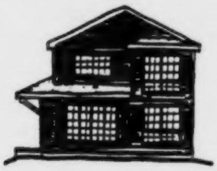
(2) Approximate total difference in direct construction costs between (A) and (B)?
WRITE-IN ▷ $☐.☐☐☐

COMPARISON THREE

[A]



[B]



- both 900 SQ.FT. 2-STOREYS
- both 25 FT. WIDE

(1) Approximate direct construction costs of porch overhang on (B)?
WRITE-IN ▷ $☐.☐☐☐

(2) Approximate total difference in direct construction costs between (A) and (B)?
WRITE-IN ▷ $☐.☐☐☐

Q.10 Do most of the houses you build resemble (A) or (B)? in terms of facade treatments?

☐ 1. resemble (A)'s
☐ 2. resemble (B)'s
☐ 3. mixture of both types

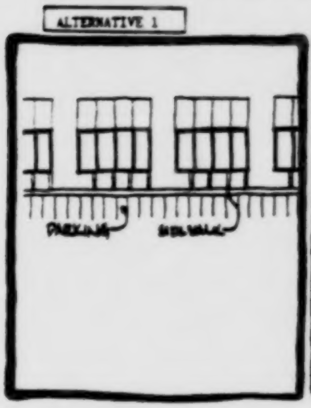
Q.11 What are the major constraints preventing you from building homes with very simple facade treatments? [CHECK ALL THAT APPLY]

☐ 1. no constraints
☐ 2. buyer acceptance
☐ 3. building regulations and codes
☐ 4. land-use by-laws
☐ 5. architectural controls
☐ 6. other ________________
____

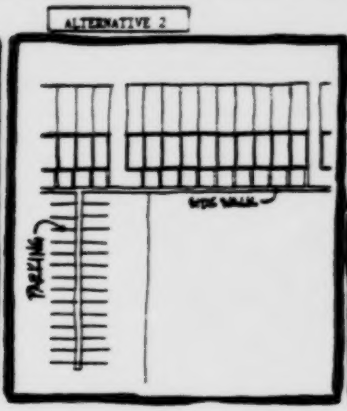
Q.12 **NOTE:** IF YOU HAVE BUILT FOR THE TOWNHOUSE CONDO MARKET, PLEASE ANSWER THE QUESTIONS ON THIS PAGE.

Shown below are a number of alternative townhouse layouts. Assuming that the project sizes are the same (60 units) and the basic unit is also the same (1100 SQ. FT., 2-STOREY), please indicate the approximate difference in direct construction costs and site development costs between the various alternatives.

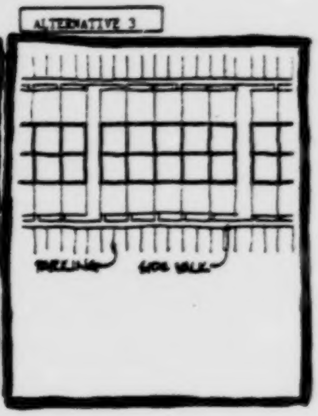
ALTERNATIVE 1



ALTERNATIVE 2



ALTERNATIVE 3



(1) What is the approximate per unit cost saving in attaching 10 units in a row (ALTERNATIVE 2) as opposed to attaching only 4 units in a row (ALTERNATIVE 1)?

WRITE-IN ▷ $ ☐,☐☐☐

(2) What is the approximate per unit cost saving in grouping parking away from the units (ALTERNATIVE 2) as opposed to having parking directly in front of units (ALTERNATIVE 1)?

WRITE-IN ▷ $ ☐,☐☐☐

(3) What is the approximate per unit cost saving in attaching 10 units back-to-back (ALTERNATIVE 3) as opposed to attaching 10 units side-ty-side (ALTERNATIVE 2)?

WRITE-IN ▷ $ ☐,☐☐☐

Q.13 (a) What are the major constraints preventing you from building townhouse units as described in alternative 2?

☐ 1. no constraints
☐ 2. buyer resistance
☐ 3. land-use bylaws
☐ 4. other ____________________
____

(b) What are the major constraints preventing you from building townhouse units as described in alternative 3?

☐ 1. no constraints
☐ 2. buyer resistance
☐ 3. land-use bylaws
☐ 4. other ____________________
____

Q.14 Do most of the homes you build have a completed ½ bath, roughed-in ½ bath or no ½ bath?

☐ 1. most have completed ½ bath
☐ 2. most have roughed-in ½ bath
☐ 3. most have no ½ bath

Q.15 (a) What are the approximate direct construction costs of a completed ½ bath on the main floor of a 2-storey house?

WRITE-IN ⊳ $☐.☐☐☐

(b) What are the approximate direct construction costs of a roughed-in ½ bath on the main floor of a 2-storey house?

WRITE-IN ⊳ $☐.☐☐☐

Q.16 Approximately how much would you save in direct construction costs if the following items were eliminated from one of your standard 1100 SQ.FT. bungalows and left for buyer completion after purchase?

(1) all interior wall surfaces left unpainted ESTIMATED SAVING ⊳ $☐.☐☐☐
(2) interior walls painted with primer coat only ESTIMATED SAVING ⊳ $☐.☐☐☐
(3) no interior or exterior light fixtures ESTIMATED SAVING ⊳ $☐.☐☐☐
(4) no closet doors ESTIMATED SAVING ⊳ $☐.☐☐☐
(5) all floors covered with linoleum ESTIMATED SAVING ⊳ $☐.☐☐☐
(6) floors left unfinished/subfloor only ESTIMATED SAVING ⊳ $☐.☐☐☐
(7) no overhead kitchen cupboards ESTIMATED SAVING ⊳ $☐.☐☐☐
(8) an unfinished walk-in pantry (25 SQ.FT.) instead of overhead kitchen cupboards ESTIMATED SAVING ⊳ $☐.☐☐☐

Q.17 What are the major constraints preventing you from leaving more interior work for buyer completion after purchase?

☐ 1. no constraints
☐ 2. buyer resistance
☐ 3. building codes and regulations
☐ 4. lender's requirements
☐ 5. after sales service problems
☐ 6. other ____________________
____

Q.18 Please indicate whether or not you are familiar with any of the following construction techniques, whether or not you now use these techniques in building and whether, in your opinion cost savings in direct construction costs would result from these techniques as compared to standard practices.

TECHNIQUE		FAMILIAR WITH?		USE?		COST SAVING?		
		YES	NO	YES	NO	YES	NO	DON'T KNOW
1. designing units to a module of 2 feet, out-to-out	⊳	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 3.
2. framing houses, walls and floor joists 24 inches on-center, in line with each other	⊳	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 3.
3. using two-stud corners with metal drywall back-up clips	⊳	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 3.
4. using plywood box beam headers instead of solid wood headers	⊳	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 3.
5. windows 22½ inches wide placed between studs 24 inches on center to eliminate window headers	⊳	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 3.
6. single top plates on all walls	⊳	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 3.
7. single layer, glue-nailed T & G plywood for flooring	⊳	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 3.

Q.18 continued

	FAMILIAR WITH ?		USE ?		COST SAVING ?		
8. eliminating studs as drywall nailers by using metal drywall back-up clips ▷	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 3.
9. eliminating sheathing and corner bracing by using single layer plywood siding ▷	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 3.
10. eliminating bulkheads over kitchen cabinets ▷	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 3.
11. using open soffit overhang ▷	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 3.
12. use of pressure treated wood foundations instead of cast-in-place concrete ▷	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 3.
13. eliminating heating ducts with underfloor plenum heating system ▷	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 3.
14. use of prefabricated DWV plumbing trees ▷	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 3.
15. use of polybutylene hot and cold water supply plumbing ▷	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 1.	☐ 2.	☐ 3.

Q.19 What is your position in your company? ____________________

Q.20 Do you have any comments you would like to make?

____

____

THANK YOU VERY MUCH FOR YOUR TIME AND CO-OPERATION IN HELPING US WITH THIS STUDY.
PLEASE USE THE STAMPED ENVELOPE PROVIDED, TO RETURN YOUR COMPLETED QUESTIONNAIRE.

BUILDER COST ESTIMATES:
SUMMARY OF QUESTIONNAIRE RESULTS [n = 11]

Q.1	Primary market for building activity:	1. ownership	10
		2. ownership and rental	1
Q.2	Unit types built in last 12 months for ownership market:	1. single-detached	11
		2. semi-detached	5
		3. townhouse	2
Q.3	Predominant price range for sales in last 12 months:	1. $70-$80,000	8
		2. $80-$90,000	2
		3. over $90,000	3
Q.4	Average percentage of unit sales financed under AFHA Program in last 12 months:	1. average	51%
		2. range	5% - 100%
Q.5	(a) Predominant lot width for single-detached units:	1. under 30 feet	3
		2. 30-40 feet	6
		3. 40-50 feet	2
	(b) Predominant style for single-detached units	1. bungalow	4
		2. bi-level	1
		3. split-level	4
		4. two-storey	4
Q.6	Predominant size of units built for ownership market in last 12 months:	1. 900-1200 sq. ft.	8
		2. 1200-1500 sq. ft.	3
Q.7	Estimated saving in direct construction costs of: [from 1100 sq. ft]		
	(1) 100 sq. ft. area reducttion	1. average	$2,336
		2. range	$0 - $4,500
	(2) 200 sq. ft. area reduction	1. average	$5.130
		2. range	$2,500 - $9,000
	(3) 300 sq. ft. area reduction	1. average	$7,561
		2. range	$3,400 - $13,500
Q.8	Major constraints on building smaller homes for ownership market:	1. buyer acceptance	9
		2. bldg. codes	2
		3. land-use bylaws	2
		4. architectural controls	1
		5. market conditions	2

Q.9	Estimated direct construction costs of variances in facade treatment: [see questionnaire]		
	(1) chimney chase only	1. average	$416
		2. range	$150 - $750
	(2) decorative window grills & shutters	1. average	$447
		2. range	$100 - $1300
	(3) variable roof elevation	1. average	$696
		2. range	$260 - $1200
	(4) porch overhang	1. average	$488
		2. range	$120 - $1000
	(5) total difference between plain and fancy facade for bi-level	1. average	$1,267
		2. range	$300 - $2,500
	(6) total difference between plain and fancy facade for split-level	1. average	$1,640
		2. range	$500 - $4,000
	(7) total difference between plain and fancy facade for two-storey	1. average	$1,674
		2. range	$700 - $3,500
Q.10	Predominant facade treatment used:	1. plain	1
		2. fancy	6
		3. mixture	5
Q.11	Major constraints on building homes with plainer facades:	1. no constraints	1
		2. buyer acceptance	10
		3. architectural controls	3
Q.12	Estimated savings in direct construction costs through variances in town-house project layout: [see questionnaire]		
	(1) attaching 10 units instead of 4 [n = 3]	1. average	$2,328
		2. range	$1,985 - $3,000
	(2) grouping parking away from units instead of near units	1. average	$533
		2. range	$ 0 - $1,000
	(3) attaching units back-to-back instead of side-to-side	1. average	$796
		2. range	$ 0 - $2,000
Q.13	(a) Major constraints on reducing costs by attaching 10 units side-by-side:	1. no constraints	1
		2. buyer acceptance	1
		3. fire codes	1
	(b) Major constraints on reducing costs by attaching 10 units back-to-back:	1. buyer acceptance	2
		2. land-use by-law	2
		3. building codes	1
Q.14	Inclusion of ½ bath in homes built:	1. completed ½ bath	7
		2. roughed-in ½ bath	3
		3. no ½ bath	2

Q.15	(a) Estimated direct construction costs of completed ½ bath on main floor:	1. average		$753
		2. range	$450 -	$1,200
	(b) Estimated direct construction costs of roughed-in ½ bath on main floor:	1. average		$328
		2. range	$150 -	$800
Q.16	Estimated saving in direct construction costs by leaving following items for buyer completion:			
	(1) interior walls unpainted	1. average		$897
		2. range	$450 -	$1,500
	(2) interior walls with primer coat only	1. average		$457
		2. range	$300 -	$740
	(3) interior & exterior light fixtures	1. average		$222
		2. range	$100 -	$400
	(4) closet door	1. average		$455
		2. range	$200 -	$800
	(5) all floor with lino only	1. average		$360
		2. range	$ 0 -	$800
	(6) floors left unfinished/subfloor only	1. average		$1,842
		2. range	$1,460 -	$3,000
	(7) no overhead kitchen cupboards	1. average		$506
		2. range	$350 -	$800
	(8) unfinished walk-in pantry instead of overhead cupboards	1. average		$105
		2. range	$ 0 -	$250
Q.17	Major constraints on leaving more for buyer completion:	1. buyer acceptance		8
		2. building codes		3
		3. lender's requirements		7
		4. after sales problems		4

Q.18 Savings in direct construction costs with following techniques:	FAMILIAR WITH	USE	COST SAVINGS
(1) designing units to a module of 2 feet, out-to-out	7	3	5
(2) framing 24 inches on center	9	1	5
(3) two stud corners	7	3	2
(4) plywood box boom headers	7	0	0
(5) windows 22½ inches wide	3	0	2
(6) single top plates	7	0	3
(7) T & G plywood flooring	10	10	7
(8) metal drywall back-up clips	4	1	1
(9) single layer plywood siding	7	0	3
(10) no bulkheads over kitchen cabinets	6	2	2
(11) open soffit overhang	7	0	1
(12) pressure treated wood foundations	8	0	1
(13) underfloor plenum heating system	7	1	0
(14) prefabricated plumbing trees	4	0	0
(15) polybutylene plumbing	7	0	2

A. Respondent type:	1. Calgary	3
	2. Edmonton	8

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Number/
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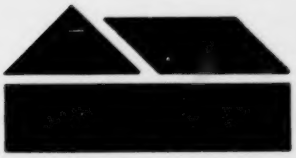
2

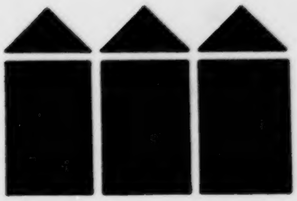
Design Preferences and Trade-Offs for Moderately Priced Housing in Alberta

Computer Program Instruction Manual



Single-Detached Units

Semi-Detached Units



Townhouse Units

Alberta
DEPARTMENT OF HOUSING

PROVINCIAL HOUSING PROGRAMS IN ALBERTA

JANUARY, 1984

ALBERTA DEPARTMENT OF HOUSING
ALBERTA HOME MORTGAGE
ALBERTA HOUSING CORPORATION

Alberta
Department of Housing

INTRODUCTION

This document describes the housing and related programs provided by or through the Alberta Government. It has been produced for public distribution to inform the public, builders, municipal governments and others in the field of housing about the programs available.

The following descriptions include only the main features of the programs. More detailed information on any program can be obtained from individual program brochures or by contacting the agency responsible for delivering the program. Provincial housing programs are delivered individually or jointly by three agencies: Alberta Department of Housing, Alberta Home Mortgage Corporation and Alberta Housing Corporation. While each description mentions the responsible agency, a detailed list of contacts for each program is presented separately in the Appendix.

The programs have been grouped according to the following categories:

- Home Ownership Programs;
- Rental Housing Programs;
- Rural and Remote Housing Programs;
- Home Repair and Conversion Programs;
- Housing Assistance for the Handicapped;
- Land Development Programs
- Municipal Assistance Programs
- Housing Research and Development; and
- Housing Registry Program.

It should be noted that housing programs available in Alberta and financed and delivered solely by Canada Mortgage and Housing Corporation have not been included in this document and inquiries about them should be directed to the nearest CMHC office.

Requests for this document are welcome and should be sent to:

Department of Housing
Policy & Program Development Branch
4th Floor, 10050 - 112 Street
EDMONTON, Alberta
T5K 2J1

NEW PROGRAMS AND CHANGES TO PROGRAMS

This edition of Provincial Housing Programs in Alberta booklet, has been updated as follows:

NEW PROGRAM: **Mobile Home Loan Insurance Program (Section I)**

EXISTING PROGRAMS: **Unique Home Assistance Program:**

Eligible costs of care and services increased from $4.57 to $4.80 per patient per day.

Extended Alberta Rental Investment Incentive Program:

The paragraph "Forms of Assistance" now reads as follows:

Individual and corporate taxpayers are eligible for a refundable tax credit or grant as follows:

Projects commenced in 1982 - 12.5% of the capital cost of a qualifying Alberta Multiple unit residential building, excluding land, to a maximum of $8,000.00 per residential unit. Projects commenced in 1983 - 10% of the capital cost of a qualifying Alberta Multiple unit residential building, exluding land, to a maximum of $6,400.00 per residential unit.

Rural Mobile Home Program:

- The minimum monthly payment has been increased from $100 to $200.
- The client eligibility requirement of having maximum gross annual income of $16,000 has been dropped.

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HERITAGE FUND MORTGAGE INTEREST REDUCTION PROGRAM

RESPONSIBILITY: Mortgage Assistance Branch
Department of Housing

PURPOSE: OPTION A - Interest Reduction
To reduce mortgage interest rates for homeowners, including those who are renewing their mortgages, those who are buying a new home, and those who have previously renewed their mortgages at a high interest rate.

OPTION B - Renegotiation
To financially assist homeowners who are receiving or are eligible to receive benefits through the Mortgage Interest Reduction Program when they renegotiate their mortgage interest rates before the end of their mortgage term.

These two options are described below.

OPTION A: Mortgage Interest Reduction

ELIGIBILITY:

1. Homeowner Eligibility
   a) Applicants must
      - be Canadian citizens or have landed immigrant status
      - be Alberta homeowners
      - be residing in their own homes
      - have a mortgage on their home with an interest rate above 12.5%
   b) Only one application per household is eligible.

2. Dwelling Eligibility
   a) The dwelling unit must
      - be located in Alberta
      - be owned by the applicant(s).
      - be the applicant's(s') principal residence.
   b) All types of permanent ownership residential building units are eligible including freehold, leasehold, and condominium titles.
   c) Mobile homes on the applicant's owned or leased land are also eligible.

3. Mortgage Eligibility
   a) Mortgage principal amounts of up to $60,000 per home.
   b) All existing mortgages.
   c) All new mortgages taken out or assumed by a purchaser after September 1, 1982.
   d) All mortgage renewals after September 1, 1982.
   e) Alberta Family Home Purchase Program mortgages are also eligible providing the effective interest rates are above 12 1/2%.

HOME OWNERSHIP

HERITAGE FUND MORTGAGE INTEREST REDUCTION PROGRAM

FORM OF ASSISTANCE:

Subject to the restriction of a maximum eligible interest rate, a homeowner will be eligible for a monthly amount equal to the difference between the principal and interest component of his actual monthly payment and the amount that he would be charged if the interest rate on his mortgage were 12 1/2%.

a) Existing Unrenewed Mortgages

- Interest rates will be reduced from the actual rate to 12.5%
- Interest rates above the maximum eligible interest rate of 19 1/2% will be deemed to be 19 1/2%.

b) New Mortgages and Mortgages Renewed after September 1, 1982

- Interest rates will be reduced from the actual rate to 12.5%
- The maximum eligible interest rate will be reviewed and adjusted periodically.

c) Condominium fees and property taxes must not be included when calculating the interest reimbursement payment.

d) The interest reimbursement payment will be sent monthly to the homeowner.

APPLICATION PROCEDURES:

Program brochures and application forms are available from local financial institutions, such as Treasury Branches, and the Mortgage Assistance Branch. Applicants must complete appropriate section(s) of the application form and the lender who holds their mortgage(s) also must complete approriate sections. Completed application forms are then sent to the Mortgage Assistance Branch for processing.

HERITAGE FUND MORTGAGE INTEREST REDUCTION PROGRAM

OPTION B: Mortgage Renegotiation Option

ELIGIBILITY:

1. Applicants must be eligible for a monthly interest rebate from the Mortgage Interest Reduction Program prior to mortgage renegotiation.
2. An applicant must be the resident owner of the house. The assistance will terminate if an applicant sells his/her house.
3. Applicants must renegotiate a fixed rate mortgage. Variable rate mortgages are not eligible.

FORM OF ASSISTANCE: Approved homeowners are reimbursed over time for their eligible prepayment penalties and associated eligible administrative charges. Eligible costs equal the least of:

1. Actual interest penalty costs of renegotiating plus up to $200.00 legal and administrative costs.
2. The equivalent of what the Program was going to pay before renegotiation less a processing cost of $100.00 and,
3. Three months interest penalty on the eligible principal based on the Program's established maximum interest rate, plus up to $200.00 legal and administrative costs.

Alberta Family Home Purchase Program mortgages are also eligible providing the effective interest rates are above 12 1/2%.

Renegotiation benefits may also be available when applicants pay out their mortgages or refinance with a different lender before the scheduled end of the mortgage term.

FURTHER INFORMATION: Contact the Mortgage Assistance Branch at the address or telephone number given in the Appendix.

HOME OWNERSHIP

ALBERTA FAMILY HOME PURCHASE PROGRAM

RESPONSIBILITY: Alberta Home Mortgage Corporation (AHMC)

PURPOSE: To assist families with low and moderate incomes to buy new or existing housing. To stimulate the construction of modest housing to meet the needs of this group.

To further reduce the cost of owning a house for low and moderate income families, a "Shell Housing" option of this program is also available. This option enables families to construct "shell housing" for ownership and is described below.

ELIGIBILITY: The Program is available to families, single adults with at least one dependent child or to handicapped individuals who wish to purchase an existing home, to have them built or to builders who wish to build homes for sale to qualified purchasers.

a) Families are defined as a married couple or an adult with at least one dependent child.
b) To be eligible handicapped individuals must be permanently confined to wheelchairs.
c) To be eligible household applicants must have an adjusted gross income (AGI) equal to or less than $34,000 per year AGI = 100% of principal wage earner's income + 100% of working spouse's income, less working spouse's income to a maximum of $4,000; less $300 per dependent child up $1,500
d) To be eligible applicants must make a 10% down payment on their homes.
e) The applicant and/or co-applicant must have resided in Alberta for at least two years out of the past ten years to obtain a subsidy.

2. Dwelling: Single detached and multiple housing are eligible for financing. This includes stacked condominiums, however, only new stacked condominiums are eligible for financing.

a) Price: The maximum eligible new house price is $78,000 and the maximum price of an existing dwelling is $74,000.
b) Size: The maximum allowable size for new homes is $110m^2$ for a bungalow, bi-level or split level; $120m^2$ for a two storey dwelling. $20m^2$ may be added to the above maximums if the unit does not have a basement. The above maximum do not apply to existing units. The maximum size for a stacked condominium is $100m^2$.

HOME OWNERSHIP

ALBERTA FAMILY HOME PURCHASE PROGRAM (continued)

Also eligible are mobile homes on permanent foundations, meeting AHMC requirements, and shell houses (see Page 7) Shell houses are completely finished on the outside but, while the house is habitable, it is not completely finished on the inside.

FORM OF ASSISTANCE:

On existing homes, A.H.M.C. provides mortgage loans of up to 90% of the lending value of the house and land, up to $62,899 plus the mortgage insurance fee. Existing homes are houses that have stood, with construction completed, for at least one year.

On new homes the loan amount shall not exceed 90 percent of the lending value up to a maximum loan amount of $68,993 plus the mortgage insurance fee.

Loans are calculated at A.H.M.C.'s conventional interest rate which is near to market rate. Amortization periods are up to 40 years with 5 year terms.

Applicants with adjusted gross incomes of less than $34,000 may be eligible for a subsidy. The amount of the subsidy will vary according to household income, and the amount of a house payment. An additional subsidy of $25 per month for a period of 12 months is available to first-time homeowners who meet Program guidelines and who purchase new homes complying with special size limits. The need for subsidy is reviewed every 12 months and subsidies end after 60 months.

APPLICATION PROCEDURES:

Builders apply directly to A.H.M.C. Families apply directly to builders, or A.H.M.C. if purchasing an existing home, building their own home or having a home built.

FURTHER INFORMATION:

Financing conditions of this Program are subject to change. Please contact an A.H.M.C. office at any of the addresses given in the Appendix for up-to-date information.

ALBERTA FAMILY HOME PURCHASE PROGRAM (continued)

SHELL HOUSING OPTION:

GENERAL DESCRIPTION: "Shell housing" is housing which is completely finished on the outside but, while the house is habitable, it is not completely finished on the inside. Overall, a shell house is about 75% complete. The elements which the homeowner is responsible for completing are:

a) floor finishings
b) baseboards
c) taping, filling and finishing drywall (except in bathrooms)
d) interior doors, frames and hardware (except bathrooms)
e) closets
f) light fixtures
g) wall hung kitchen cabinets, and
h) landscaping.

Homeowners should complete their house only as their income and financial position allows them to assume additional financial obligations comfortably.

ELIGIBILITY:

1. Client: Families who are eligible for assistance under the Alberta Family Home Purchase Program are eligible (see description of the Program for detailed eligibility requirements). Builders who wish to build shell homes for sale to eligible purchasers are also eligible.

2. Dwelling: a) Only single family dwellings are eligible for financing. b) The Program applies only to new construction.

FORM OF ASSISTANCE: Loans and subsidies are provided as under the Alberta Family Home Purchase Program. The loan amount will be based on the value of the shell house, as opposed to the completed house. Mortgage funds will normally be totally advanced when the shell home is completed.

APPLICATION PROCEDURE: Builders apply directly to AHMC.
Individuals apply to builders, or, if building their own home, to AHMC.

FURTHER INFORMATION: Financing conditions of this Program are subject to change. Please contact an A.H.M.C. office at any of the addresses given in the Appendix for up-to-date information.

HOME OWNERSHIP

CO-OPERATIVE HOUSING ACTION PROGRAM

RESPONSIBILITY: Co-op Housing Branch, Financial Assistance Division, Department of Housing: planning, training and start-up assistance.

Alberta Home Mortgage Corporation (AHMC): loan capital and subsidies to moderate and low income AHMC mortgage applicants.

Alberta Housing Corporation (AHC): acquiring land for the Co-op Branch.

Canada Mortgage and Housing Corporation (CMHC):
financial contribution for applicants qualifying for a Rural & Native mortgage (see below).

PURPOSE: To provide assistance to those families who are willing and able to participate in the construction of their home, to enable them to build and own a house.

ELIGIBILITY: All families are eligible to apply under the Program. Priority is given to:

a) Families or single parents with one or more dependent children.
b) First time home owners.
c) Families who own a home but have a need for other or better accommodation.

Priority to clients with low income who qualify for a Rural & Native Mortgage (see below) will be given to families with the worst housing conditions and to the largest families.

FORM OF ASSISTANCE: The Program offers two delivery methods and three alternative financing techniques:

1. Delivery Methods:

a) Families can act as general contractor for the construction of their home. Families who choose this option attend a construction management course held one or two evenings a week for about 12 weeks. Topics covered during the course include home design, mortgages and interim financing, contracts and liens and an overview of all the phases of the construction process. Special emphasis is given to later phases to help the owners do that work themselves.

CO-OPERATIVE HOUSING ACTION PROGRAM (Continued)

b) Families who wish less involvement receive basic information on home design, financing and contracts and guidance in finding a reputable builder.

2. Financing Techniques:

a) Conventional mortgage: the Co-op Housing Branch will help applicants find a private mortgage.

b) AHMC mortgage: clients who satisfy the requirements of the Alberta Family Home Purchase Program are eligible for an AHMC mortgage and subsidies in accordance with that Program.

c) Rural & Native mortgage: families living in communities with a population of 2500 or less, which are designated by the Province and CMHC, and having an income of $18,000 or less are required to pay a minimum downpayment of $500 in the form of cash, or land. AHMC lends the balance to the owners who must make monthly payments of 25% of household income less $2 per child per month. The balance needed to amortize the mortgage and pay taxes is paid by the Department of Housing (25%) and CMHC (75%).

3. Land: The Co-op Housing Branch arranges for the purchase of land by AHC and offers assistance to a client to find and purchase land from private sources.

APPLICATION PROCEDURE: Interested individuals apply to the Co-op Housing Branch or contact one of the housing officers at any of the Branch offices.

FURTHER INFORMATION: Contact a Co-operative Housing Action Program office at any one of the addresses given in the Appendix.

RENTAL HOUSING PROGRAMS

CORE HOUSING INCENTIVE PROGRAM

RESPONSIBILITY:	Alberta Home Mortgage Corporation (AHMC)
PURPOSE:	To stimulate the production of market rental housing and modest rental housing in all communities with a population over 5000 and in specified growth communities.
GENERAL DESCRIPTION:	50% of each of the unit types within each project built under the Program are rented at market rents set by the owner of the project. Rents on the remainder of the units are controlled and are set on an individual project basis by AHMC, taking into account construction, land and operating costs, an allowed rate of return of 5% of the owner's investment in the controlled rent units and the debt service on the loan for the controlled units, bearing a preferred interest rate.
ELIGIBILITY: 1. Tenants	(for Controlled Rent Units) a) Adjusted income is defined as total household income less Family Allowance and Youth Allowance; living out or travelling allowances of a family head; earnings of a spouse up to $1000 per year; income of any source up to $1000 per year for a one-parent family; capital gains such as insurance settlements, inheritances, disability awards, sale of effects; $500 deduction per dependent, exclusive of spouse, up to a maximum of five. b) Only those applicants whose income is less than four times the controlled rent qualify for a controlled rent unit.
2. Proponent	Proponents must be able to demonstrate that they have the financial and administrative ability to construct and manage rental projects of the size and type being proposed.
FORM OF ASSISTANCE:	Loans to builders of up to 90% of the appraised cost of land and buildings as determined by AHMC at a preferred interest rate. The amortization period is 40 years and the term is 10 years.
APPLICATION PROCEDURE:	Builders apply directly to AHMC. Individuals apply directly to apartment owners.
FURTHER INFORMATION:	Contact an AHMC office at the address given in the Appendix.

RENTAL HOUSING PROGRAMS

MODEST APARTMENT PROGRAM

RESPONSIBILITY: Alberta Home Mortgage Corporation (AHMC)

PURPOSE: To stimulate the construction of small rental housing projects in Alberta's smaller centers in order to provide rental housing for moderate income families and individuals living in these areas.

ELIGIBILITY:

1. Area: Small centers in Alberta (all centers except Calgary and Edmonton) where demand for multiple rental housing exists are eligible.

2. Proponent: Proponents must demonstrate their financial and administrative ability to construct and manage rental projects.

FORM OF ASSISTANCE: AHMC provides loans at its conventional interest rate (which is near the market rate) of up to 90% of the value of land and buildings. The amortization period is up to 40 years with a five year term. Mortgage payment reduction subsidies are provided to the owner for the project at the current interest rate. The payment reduction subsidies per unit per month are \$160 in the first year, \$120 in the second year and \$80 in the third year \$40 in the fourth year. Subsidies end after year four.

PROCEDURES: Builders apply directly to AHMC.

FURTHER INFORMATION: Contact an AHMC office at any of the addresses given in the Appendix.

RENTAL HOUSING PROGRAMS

MUNICIPAL NON-PROFIT PROGRAM

RESPONSIBILITY:	Alberta Home Mortgage Corporation (AHMC): Capital financing, project approval and project inspection. Canada Mortgage & Housing Corporation (CMHC): subsidy contribution. Municipal Non-Profit corporation: tenant selection, project management and project maintenance.
PURPOSE:	1. To provide rental housing for low and moderate income people. This Program provides a level of subsidy which is intermediate between the deep subsidies of the Community Housing and Senior Citizen Self-Contained Programs on the one hand and the more shallow subsidies of the Core Housing Incentive Program. 2. To promote mixed-income housing.
ELIGIBILITY:	
1. Tenants	Low and moderate income families and individuals are eligible for assistance under the Program.
2. Proponents	Only Municipal Non-Profit Corporations are eligible.
3. Housing	The Program allows for the construction of new housing, the acquisition of existing housing and the rehabilitation of existing housing.
FORM OF ASSISTANCE:	AHMC provides loans to Municipal Non-Profit Corporations at CMHC's Section 58 interest rate with an amortization period of up to 35 years. CMHC provides interest write-down grants for eligible municipal non-profit projects. The grants are the lesser of a) the amount required to reduce the interest rate to 2% on a 100% loan with a 35 year amortization period and b) operating losses.
APPLICATION PROCEDURE:	Municipal Non-Profit Housing Corporations apply to AHMC for loans. Individuals apply to the Municipal Non-Profit Housing Corporation.
FURTHER INFORMATION:	Contact an AHMC office at any of the addresses given in the Appendix or a local Municipal Non-Profit Housing Corporation.

RENTAL HOUSING PROGRAMS

COMMUNITY HOUSING PROGRAM

RESPONSIBILITY:	Alberta Housing Corporation (AHC): capital financing, building and financial contributions. Canada Mortgage & Housing Corporation (CMHC): financial contributions. Municipality: financial contributions. Local Housing Authority: management.
PURPOSE:	To provide rental accommodation for low income families and in some cases, individuals such as senior citizens who, because of their low income cannot obtain adequate housing for their needs. Housing constructed under this Program is primarily duplexes or townhouses, but may also be fourplexes or apartments.
ELIGIBILITY:	1. Families, defined as a family head and one or more persons related through birth, marriage or legal adoption are eligible. Income limits are not imposed by the Province but may be set by the Housing Authorities, if warranted. 2. The net worth of family assets such as bank deposits, equity in real estate, stocks and bonds, must not exceed $7000 per household. (Personal effects e.g. car, furniture are excluded). 3. The applicant must meet the residency requirement as set by the housing authority. 4. Priority is given to those in greatest need. Factors determining need are current income, proportion of present income paid for rent, number of dependents and conditions of present accommodation. 5. Senior citizens with low income are also eligible under the Program.
FORM OF ASSISTANCE:	Rents are set at 25% of family income less $5 per child per month. Rent for families receiving full or partial social assistance is a function of the household's basic allowance and earned exemption. The balance necessary to pay for amortization cost and operating deficits of projects is received through subsidies paid by the Federal, Provincial and Municipal Governments in the following proportions: 50%, 40%, 10%.
APPLICATION PROCEDURE:	Municipalities contact AHC. Individuals apply to the Local Housing Authority.
FURTHER INFORMATION:	Contact an AHC office at any of the addresses given in the Appendix, or a local Housing Authority.

SENIOR CITIZEN SELF-CONTAINED HOUSING PROGRAM

RESPONSIBILITY:	Alberta Housing Corporation (AHC): capital, financing, building and financial contribution. Canada Mortgage & Housing Corporation (CMHC): financial contribution. Non-Profit Sponsoring Group: management.
PURPOSE:	To provide apartment units for low to moderate income senior citizens. Units are fully self-contained bachelor or one-bedroom suites and some units are designed for handicapped tenants.
ELIGIBILITY:	Any senior citizen who is mentally and physically self-sufficient, has been a resident of Alberta for one year immediately prior to making application or any other ten years of his/her life is eligible. Eligibility is generally limited to those over 65 but applicants aged 60-65 who have serious housing problems may be granted residence in a project if vacancies exist. Tenants are selected by the management group on the basis of need. Factors determining need are income, assets, condition of present accommodation, present rent, and availability of necessary services.
FORM OF ASSISTANCE:	Tenants pay rent of 25% of their income, including pension income. Additional charges are levied for cable television, electricity, telephone and parking plug-ins.
APPLICATION PROCEDURE:	Sponsoring groups apply to AHC for funding. Individuals apply directly to the sponsoring group for accommodation in a particular project.
FURTHER INFORMATION:	Contact an AHC office at any of the addresses given in the Appendix.

RENTAL HOUSING PROGRAMS

SENIOR CITIZEN LODGE PROGRAM

RESPONSIBILITY: Alberta Housing Corporation (AHC): capital financing, construction, and financial contribution.
Senior Citizen Foundations: project management and operating costs.

PURPOSE: To provide housing to Alberta's senior citizens at rates they can afford in both rural and urban areas. Lodges offer hostel accommodation including single or double bed-sitting rooms, meals, linen, laundry services and recreational facilities.

ELIGIBILITY:

1. The Program is intended to apply to senior citizens who are in good mental and physical health.
2. Local Foundations, established by municipalities to manage lodges, may set other eligibility criteria.

FORM OF ASSISTANCE: AHC finances and builds lodges.
Participating municipalities assume responsibility for the projects upon completion through Senior Citizen Foundations (established by municipalities). Operating costs are offset by rents. 1983/84 rents are:

$288.00 per month per person for double occupancy,
$322.00 per month per person for single occupancy,
$374.00 per month per person for single occupancy in a double room.

Rent includes room and board. Operating losses are paid by the municipality. However, excessive losses may be eligible for grant available from AHC under the Lodge Assistance Program.

APPLICATION PROCEDURE: Individuals apply directly to the Foundation for lodge accommodation. Senior Citizen Foundations apply to AHC for funding.

FURTHER INFORMATION: Contact an AHC office at any of the addresses given in the Appendix, or a local Senior Citizen Foundation.

NURSING HOME FINANCING PROGRAM

RESPONSIBILITY: Alberta Home Mortgage Corporation (AHMC): loans for the construction of nursing homes.

PURPOSE: To provide loans to voluntary Non-Profit Organizations for the construction of nursing homes.

ELIGIBILITY:

1. Client

   a) Voluntary Non-Profit Organizations must be registered under The Societies Act under the Companies Branch of Alberta Corporate and Consumer Affairs.

   b) Loans may be approved only to those organizations whose application to construct and operate a nursing home has been approved by the Department of Hospitals and Medical Care. This approval must specify the per diem rate which will be paid to the voluntary Non-Profit Organization.

   c) Applicants must demonstrate to AHMC that they have the ability to repay their mortgage.

2. Building

   The target and maximum gross area per bed for lending purposes is 50 square metres which includes both residential and non-residential components. Construction plans must be approved by both the Department of Hospitals & Medical Care and AHMC.

FORM OF ASSISTANCE: AHMC will provide loans at its conventional rate (near the market rate) to approved applicants up to 95% of construction cost* plus the mortgage insurance fee. Loans must be secured by a registered first mortgage against the land on which the nursing home is located. The amortization period is up to 40 years and the term will be 5 years. Since AHMC will not finance furniture, or provide start-up capital, applicants must obtain funds for these purposes and for the minimum 5% equity requirement from other sources.

* Construction cost is defined as the aggregate of the appraised value of the land; the cost of the building, including attached fixtures and service equipment; the cost of site development and landscaping; professional fees, including those of architects, engineers, surveyors and lawyers; and any carrying charges necessary to complete the project.

APPLICATION PROCEDURE: Voluntary Non-Profit Organizations interested in constructing a nursing home should apply to the Department of Hospitals and Medical Care. Approved applicants may submit applications for loans to AHMC.

FURTHER INFORMATION: Contact the Department of Hospitals and Medical Care or an AHMC office at any of the addresses given in the appendix.

UNIQUE HOMES ASSISTANCE PROGRAM

RESPONSIBILITY: Municipal Housing Branch, Financial Assistance Division, Department of Housing.

PURPOSE: To provide grants to eligible senior citizen homes to pay a portion of their operating deficits.

ELIGIBILITY: Eligible homes are those which

a) provide lodge-type accommodation

b) are occupied primarily by senior citizens

c) are owned and/or managed by non-profit organizations

d) provide levels of care ranging from that provided in senior citizen lodges to nursing home and, on the average, provide a level of care which falls between that in lodges and nursing homes

e) are ineligible for assistance under The Nursing Home Act as are contract nursing homes or from municipalities as are senior citizen lodges, and

f) have justifiable deficits as described below.

FORM OF ASSISTANCE: Eligible homes may be awarded grants of 75% of justifiable deficits which are defined as the deficit resulting from the shortfall between revenue from patient contributions and investment income and eligible costs of care and services up to $4.80 per patient per day. Eligible costs are:

a) salaries and benefits
b) food/dietary costs
c) utilities
d) taxes
e) insurance
f) administration
g) mortgage payments
h) cleaning, laundry and supplies
i) repairs and maintenance

FURTHER INFORMATION: Contact the Program office at the address shown in the Appendix.

EXTENDED ALBERTA RENTAL INVESTMENT INCENTIVE PROGRAM

RESPONSIBILITY: Department of Housing: Notification of Eligibility and Certificate of Completion, grants to individuals.

Alberta Treasury, Corporate Tax Administration: refundable tax credits to Alberta Corporations.

The Alberta Rental Investment Incentive Program was started in 1980 and expired December 1981. This program has now been extended for a two year period - January, 1982 to December 31, 1983. Applications may still be made for the previous program as long as the buildings' construction started after December 31, 1979 and before January 1, 1982.

PURPOSE: To stimulate construction of multiple unit residential buildings in Alberta in 1982 and 1983, through the provision of a refundable tax credit or grant.

ELIGIBILITY: Alberta taxpayers, either individuals or coporations, who invest in and rent multiple residential units to third parties may apply. The buildings must be started in 1982 or 1983.

Developers or first-time individual investors are eligible for the grant. At least 80% of the floor space for the multiple units residential building must be used for residential and related purposes.

If more than one applicant has invested in a multiple unit residential building, the applicants must file an ownership and allocation agreement with Department of Housing when applying for the Certificate of Completion, which apportions the capital cost of the building among the members to determine each member's share of the grant or refundable tax credit. A copy of the ownership and allocation agreement must accompany the application for the grant or refundable tax credit.

All Rental units that are not subsidized by other Provincial or Federal Government programs are eligible.

Buildings assisted under the Federal MURB program are not eligible in order to avoid double benefits.

Investors must be subject to either the Alberta Income Tax Act or the Alberta Corporate Income Tax Act.

FORMS OF ASSISTANCE: Individual and corporate taxpayers are eligible for a refundable tax credit or grant as follows:

Projects commenced in 1982 - 12.5% of the capital cost of a qualifying Alberta Multiple unit residential building, excluding land, to a maximum of $8,000.00 per residential unit. Projects commenced in 1983 - 10% of the capital cost of a qualifying Alberta Multiple unit residential building, excluding land, to a maximum of $6,400.00 per residential unit.

APPLICATION PROCEDURE:

1. An "Application for Footing Inspection" is completed by the applicant and sent to Department of Housing in Edmonton.
2. Department of Housing will do a plan check and site inspection. If the building meets the program requirements, Department of Housing will issue a "Notification of Eligibility".
3. When the building is complete and ready for occupancy, the "Application for Certificate of Completion" is sent to Department of Housing in Edmonton.
4. Department of Housing will complete a final inspection and issue a "Certificate of Completion", if the building qualifies.
5. Certificate of Completion must be issued prior to January 1, 1986.
6. Application for tax incentive must be made within 18 months from the date the Certificate of Completion.
7. Corporations apply to Alberta Corporate Tax Administration for a refundable tax credit.
8. Individuals apply to Department of Housing in Edmonton for a grant.

FURTHER INFORMATION:

Questions regarding application forms for Notification of Eligibility and Certificate of Completion should be addressed to:

Alberta Rental Investment Incentive Program Branch
Financial Assistance Division
Department of Housing
3rd Floor, 10050 - 112 Street
EDMONTON, Alberta
T5K 1L9 Telephone: 427 8161

Department of Housing
Southern Alberta Housing Program Branch
Room 102. 112 - 28 Street, S.E.
CALGARY, Alberta
T2A 6J9 Telephone: 261 8464

Questions from Alberta corporations may be referred to

Corporate Tax Administration
Alberta Treasury
9811 - 109 Street
EDMONTON, Alberta
T5K 2L5 Telephone: 427 0712
Zenith 22143

RURAL AND REMOTE HOUSING PROGRAMS

RURAL MOBILE HOME PROGRAM

RESPONSIBILITY:	Alberta Housing Corporation (AHC)
PURPOSE:	To provide a mobile home to low-income families who have an emergency housing need.
ELIGIBILITY: 1. Client	Families who have an emergency housing need who cannot obtain other forms of housing are eligible. Priority will be given to families a) whose dwelling has been destroyed by fire, b) whose dwelling is unsafe due to structural defects and is beyond repair, c) whose dwelling is jeopardizing the health of the occupants.
2. Dwelling and Services	Industrial trailers or single-wide mobile homes are eligible Industrial trailers are provided with wood burning stoves and heaters if required and roughed-in electrical services. Refrigerators and electric stoves are provided with conventional mobile homes. Furniture is not provided. Only those services which are available on site will be connected to the home. The Program does not provide wells or septic tanks or fields. All units include porches.
FORM OF ASSISTANCE:	The homes are provided on a rental/ownership basis. All homes are initially rented, but after the total cost of the home (purchase price plus delivery and installation costs less depreciation on existing units) is paid, the occupant will become owner of the home. The minimum monthly payment is $200. Payments will be required until the total cost is paid. No interest will be charged on the balance owing. Occupants pay for utilities and property taxes and lease fees on land owned or leased by the occupant. AHC Pays taxes and lease fees on AHC land until the occupant owns the unit.
APPLICATION PROCEDURE:	Applications may be made to the Metis Association of Alberta or to AHC.
FURTHER INFORMATION:	Contact an AHC property manager at any of the AHC office addresses given in the Appendix.

RURAL AND REMOTE HOUSING PROGRAMS

RURAL MOBILE HOME PROGRAM ON INDIAN RESERVES

RESPONSIBILITY:	Alberta Housing Corporation (AHC): home purchase, delivery and installation, financial contribution. Department of Indian & Northern Affairs (DIAND): information dissemination, financial guarantee, project priority and allocation (in consultation with Bands). Indian Band: site planning and preparation, house payments and home maintenance.
PURPOSE:	To extend the Rural Mobile Home Program to Indian Reserves where an emergency housing situation exists and where the Band does not have the financial capability to provide their own housing requirements.
ELIGIBILITY:	
1. Bands	Reserves designated by DIAND are eligible. DIAND determines those reserves which will have priority for assistance under the Program in consultation with the Bands and on the basis of lowest incomes and poorest housing conditions.
2. Clients	Families who have an urgent housing need (as defined under the Rural Mobile Home Program) and whose annual income is below $16,000 are eligibile.
3. Dwelling & Services	The same dwelling types and services are available as under the Rural Mobile Home Program.
FORM OF ASSISTANCE:	AHC sells the homes to Bands at cost plus purchase and installation costs. Bands must repay these costs on a regular monthly basis at a minimum rate of $100 per month per unit until total costs are repaid. No interest is charged on the balance owing. DIAND must guarantee repayment to AHC. Bands are responsible for home maintenance but AHC will train Band staff in home maintenance. Bands establish rental rates for individual households.
APPLICATION PROCEDURES:	DIAND informs Bands of Program and works with them to establish priority Bands. Bands complete applications and submit them to AHC. Bands and AHC execute a Master Sale and Operating Agreement.
FURTHER INFORMATION:	Individual Bands contact DIAND officers.

21. RURAL AND REMOTE HOUSING PROGRAMS

RURAL HOME ASSISTANCE PROGRAM

RESPONSIBILITY: Rural Home Assistance Branch, Financial Assistance Division, Department of Housing: program administration and financial assistance.
Non-Profit Community Housing Association: program implementation.

PURPOSE: To help families and communities in designated remote areas of Alberta to build or repair their own homes. The Program is a self-help Program requiring local community management of the housing construction program and individual family participation in construction. Housing assistance is provided in areas where conventional methods of financing housing are not available. Currently, two groups of communities are emphasized: Isolated Communities and eight Metis Settlements.

ELIGIBILITY:

1. Community Remote communities are selected annually for housing assistance on the basis of the following criteria:

a) The overall housing need,
b) The availability of other housing assistance programs,
c) The community's willingness and ability to administer a local housing construction program,
d) The willingness of individual families to contribute to the construction of the dwelling.

Communities must establish a registered non-profit housing association to be eligible.

2. Client Residents of designated communities who meet the following requirements are eligible:

a) Households with at least one dependent,
b) Recognized community residents who own, lease or have permission to build on land,
c) Households with low annual income,
d) Households living in poor housing conditions.

3. Dwelling While there are no rigid guidelines, preference will be given to methods of construction which make use of local materials.

FORM OF ASSISTANCE: Grants are available to individual communities, based on an average amount per unit, primarily to help pay for materials for new construction and repairs.

APPLICATION PROCEDURES: Communities apply directly to Department of Housing. Families apply to the local housing association.

FURTHER INFORMATION: Contact any Department of Housing officer or one of the Program contacts listed in the Appendix.

RURAL AND REMOTE HOUSING PROGRAMS

TRANSITIONAL HOUSING PROGRAM

RESPONSIBILITY:	Alberta Housing Corporation (AHC): construction, financial contribution.
PURPOSE:	To provide housing to low income employable families who move from northern isolated communities to employment centres to work.
CONTEXT:	The Transitional Housing Program is the shelter component of the Employment Counselling and Relocation Services Program (EC&RS) delivered by the Manpower Services Division of the Department of Manpower. EC&RS provides a wide range of support to participants in the Program during their period of transition, including social and employment counselling.
ELIGIBILITY: 1. Clients	In order to be eligible for Transitional Housing, families must first be approved by officials of the Department of Manpower as clients of EC&RS. Priority for acceptance into EC&RS is given to low income families who are willing and able to receive job training and who will make an effort to adjust to the wage economy and to integrate into town life. Continued eligibility for transitional housing is conditional on a clear record of rent payments, main- taining the dwelling in good order and holding a job or receiving job training.
2. Location	The Transitional Housing Program operates in communities which are employment centres and have employment opportunities, and is currently operating in Slave Lake, Fort McMurray, Grande Prairie, Peace River/Grimshaw, Whitecourt, High Level, Bonnyville, Grand Centre, and Athabasca.
FORM OF ASSISTANCE:	Dwellings are initially provided on a rental basis. Rents are 25% of income except that the minimum rent is $100 per month. Families who have lived in their dwelling for two years and, in that period, have had a clear record of rental payments, have demonstrated their ability to pay for and maintain their dwelling and are in a position to continue a successful role in the community without further assistance may be eligible to purchase it at the original cost plus maintenance cost.
APPLICATION PROCEDURES:	Families apply to a housing counsellor from the Department of Manpower.
FURTHER INFORMATION:	Contact an AHC office at any of the addresses given in the Appendix or the Department of Manpower.

STAFF HOUSING PROGRAM

RESPONSIBILITY:	Alberta Housing Corporation (AHC)
PURPOSE:	To provide rental housing to government employees in designated remote locations where no suitable accommodation exists.
ELIGIBILITY: 1. Client	Government employees in remote locations where no other suitable accommodation exists.
2. Location:	a) Rural Provincial Parks b) Forest Ranger Stations and Grazing Reserves c) Essential "on-site" housing at Provincial Institutions d) Approved designated remote communities.
FORM OF ASSISTANCE:	AHC establishes rents and utility rates for staff housing. Both are lower than the cost of provision and are subsidized by Departments whose employees occupy the housing.
FURTHER INFORMATION:	Contact an AHC office at any of the addresses given in the Appendix.

HOME REPAIR AND CONVERSION PROGRAMS

SENIORS' HOME IMPROVEMENT PROGRAM

RESPONSIBILITY: Home Improvement Branch, Financial Assistance Division, Department of Housing.

PURPOSE: To provide financial assistance to low and moderate income senior citizen homeowners to repair and improve their homes.

ELIGIBILITY:

1. Applicant
   - must be 65 years of age or older, or be a widow(er) aged 55-64
   - must be Alberta homeowner
   - must be Canadian citizen or landed immigrant
   - must have resided in Canada for at least 10 years
   - must have resided in Alberta for a minimum of one year prior to application for the grant
   - must live in his/her home for at least 9 months a year
   - only one application per household is eligible
   - seniors who previously received a Pioneers' Repair Program grant are eligible
2. Eligible Dwelling Unit
   - must be located in Alberta
   - must be the applicant's principal residence
   - eligible types of homes are single family dwellings, duplexes, fourplexes, condominiums, townhomes and mobile homes
3. Tenure
   - All types of permanent owner-occupied residential buildings are eligible provided the applicant has the right to make alterations to the dwelling unit and to reside on the property.
4. Eligible Work and Materials
   - Eligible work means all permanent improvements to a dwelling, garage or yard including labour and material costs.
   - Only those eligible items and services purchased after you have received your Identification Card will be eligible for payment.

FORM OF ASSISTANCE: Grants are allocated according to (a) the combined income of the applicant and spouse for the preceeding calendar year, or (b) the total income of the single applicant for the preceeding calendar year.

Applicant and Spouse, or Single Applicant's Income	Amount of Grant
$15,000 or less	$3,000
$15,001 to $17,500	$2,000
$17,500 to $20,000	$1,000

SENIORS' HOME IMPROVEMENT PROGRAM (cont'd)

APPLICATION PROCEDURE:	Eligible senior citizens must complete an application form available from the Home Improvement Branch at the address shown in the Appendix or from any participating financial institution. Once the form is completed it must be sent back to the Program office.
FURTHER INFORMATION:	Contact the Home Improvement Branch at the address shown in the Appendix.

ALBERTA HOME CONVERSION PROGRAM

RESPONSIBILITY: Municipal Housing Branch, Financial Assistance Division, Department of Housing.

PURPOSE: To stimulate the development of additional rental accommodation in Alberta. The Program provides interest subsidies on loans taken out by owners of existing housing to provide additional units for rent in their dwelling by converting or modifying their dwelling.

ELIGIBILITY:

1. Client The Following households are eligible for assistance under the Program:

a) Homeowners whose dwelling is located in an area where the development of an additional unit for rent is permitted,

b) Homeowners who have potential to repay the home conversion loan

c) Homeowners who rent or make available for rent the additional unit(s) for at least 9 months per year.

2. Types of Conversion Any modifications to an existing building which increases the number of rental units in that building are eligible. These include the development of

a) self-contained suites
b) light housekeeping rooms
c) an additional unit in a new home under construction.

Conversions must comply with all local land use, zoning and building by-laws.

3. Loan The proceeds of the loan must be used for improvements directly related to eligible conversions.

FORM OF ASSISTANCE: Eligible homeowners may borrow (from lenders participating in the program) up to $10,000 for each self-contained suite and up to $5000 for each light housekeeping room which will result from a conversion. Department of Housing will provide interest subsidies on the outstanding balance of the loans to borrowers. The term of the subsidy will be one year but renewable up to ten years as long as the conditions of the program are followed.

APPLICATION PROCEDURE: Applicants must first obtain a building permit and then apply for a loan from a participating lender. Applications must be received on or before March 31, 1984. Department of Housing will notify the applicant of the status of the application.

FURTHER INFORMATION: Contact the Program office at the address given in the Appendix.

CHAP RETROFIT TRAINING PROGRAM

RESPONSIBILITY:	Co-op Housing Branch, Alberta Department of Housing and Energy Conservation Branch, Alberta Energy and Natural Resources.
PURPOSE:	To encourage homeowners to undertake energy conservation measures and thus reduce heating costs.
ELIGIBILITY:	All Alberta residents.
FORM OF ASSISTANCE:	The CHAP Retrofit Training Program offers a three session information and training program. The program will provide training to those who want to take on minor retrofits themselves, and provide information to those who decide to hire and supervise a contractor. The first session will take a general look at energy conservation. In this Home Energy Savers Workshop, you will find out how to choose your best conservation options and what actions and gadgets can save energy. There is no charge for this first session. The second and third sessions will focus on specific topics and provide how-to instruction on minor and major retrofits such as heating systems, hiring a contractor, sources of financing, etc. There is a nominal charge of $20.00 for these two sessions.
APPLICATION PROCEDURE:	To enter the training sessions, simply telephone the CHAP regional office closest to you at the address shown in the Appendix.

HOUSING ASSISTANCE FOR THE HANDICAPPED

HOME ADAPTATION PROGRAM

RESPONSIBILITY: Home Improvement Branch, Financial Assistance Division, Department of Housing.

PURPOSE: To promote the modification of existing housing and the construction of new housing to facilitate occupancy by wheelchair users.

ELIGIBILITY:
1. Clients

Homeowners, tenants and landlords are eligible to apply for assistance. Homeowners and tenants
a) who are wheelchair users or have a wheelchair user residing with them,b) who resided in Alberta for at least one year prior to making an application, and c) whose current adjusted gross income (AGI)* is less than $25,500 per year are eligible. In addition, only one person per household may apply for assistance. Tenants must obtain their landlord's approval of their proposal for modifying their home.

Landlords
a) who are willing to make modifications to an existing residential building to accommodate one or more wheelchair users, or b) who are willing to have residential accommodation constructed containing one or more dwelling or hostel units for wheelchair users, and c) who agree to endeavor to rent modified units to eligible tenants.

* AGI = 100% of principle wage earner's income + 100% of working spouse's income; less the working spouse's income or $4000 whichever is less; less $300 per dependent child.

2. Dwelling

a) Modifications which facilitate the occupancy of a dwelling for wheelchair users and which are permanent are eligible. In particular, this includes modifications to improve wheelchair access to the home and within the home.
b) All types of housing are eligible including single family dwellings, duplexes, triplexes, fourplexes, townhouses, condominiums, apartments, mobile homes and hostels.

FORM OF ASSISTANCE: Approved applicants may receive a grant of up to $1,000 for each housing unit which is modified. The grant must be used within three years of the date of approval.

APPLICATION PROCEDURE: Application forms are available from the Home Adaptation Program office at the address given in the Appendix, or from organizations providing services to the handicapped.

FURTHER INFORMATION: Contact the Program office at the address shown in the Appendix.

OTHER PROVINCIAL HOUSING ASSISTANCE FOR THE HANDICAPPED:

There are a number of other Provincial Housing Programs mentioned in this publication which also provide assistance for the handicapped. These programs are listed below. For more detailed explanation of each program refer to the appropriate section of this publication.

a) Housing Registry Program
Housing Registries serving physically disabled persons are operated in Edmonton and Calgary to provide housing information to the handicapped. Information on a variety of public and private units accessible to the physically handicapped can be obtained from these registries. Contacts are outlined in the Appendix.

For centres outside Edmonton and Calgary, contact the responsible Provincial or Municipal Agency.

b) Alberta Family Home Purchase Program
In addition to disabled individuals in a family, single disabled people without dependents, who are permanently confined to wheelchair, qualify for this program.

c) Community Housing Program
Some units within larger projects built under this program are accessible to disabled people.

d) Senior Citizens Self-Contained Program
Often one or more units within larger projects built under this program are accessible to the disabled.

e) Municipal Non-Profit Program
Projects built under this program may include accessible and modified units; individuals are eligible for subsidized rents. Contact local Municipal Non-Profit Housing Corporation in Calgary or Edmonton.

f) Core Housing Incentive Program
Contact directly landlords or owners of rental housing projects built under this program to inquire about the availability of accessible and modified units.

PRIVATE LAND DEVELOPMENT PROGRAMS

RESIDENTIAL LAND DEVELOPMENT PROGRAM

RESPONSIBILITY: Alberta Home Mortgage Corporation (AHMC)

PURPOSE:

1. To increase the supply of residential serviced land in Alberta,
2. To help small builders and developers participate in residential land development.

ELIGIBILITY:

1. Client

Builders and developers with assets less than $50 million and whose revenue did not exceed $50 million in the past fiscal year are eligible.

2. Project

Eligible costs are
a) the cost of land
b) planning, development, administrative and holding costs
c) on-site services
d) off-site services not funded by the municipality and which would have to be paid for by the applicant.

Project guidelines:
a) Projects up to 32.5 hectares are eligible.
b) 50% of the lots must be developed with frontages not greater than the minimum established by the municipality or 13 meters whichever is greater.
c) The loan must be secured by a first mortgage registered against the land.
d) Up to 10% of the single-family lots developed under the program must be offered for sale to the Province for use in its Co-operative Housing Action Program where there is such a housing demand.

FORM OF ASSISTANCE: Loans are available to builders up to 90% of the cost of servicing plus the cost of the land as determined by AHMC, up to a maximum of $27,500 per single family lot and $300,000 per hectare of multi-family and commercial lots. The interest rate is set by AHMC. Loans must be repaid as lots are sold and, in any case, must be repaid within 3 years from the estimated date of project completion.

APPLICATION PROCEDURE: Builders and developers apply directly to AHMC.

FURTHER INFORMATION: Contact the Director, Land Development Program, at A.H.M.C.'s Head Office.

MOBILE HOME PARK DEVELOPMENT PROGRAM

RESPONSIBILITY:	Alberta Home Mortgage Corporation (AHMC)
PURPOSE:	To stimulate the development of attractive rental sites with attractive living conditions for mobile home owners.
ELIGIBILITY:	
1. Proponent	Assistance is restricted to proponents who will assume responsibility for the installation and maintenance of roads, services, amenity areas and related park management requirements.
2. Project	a) Eligible projects are those which are under single ownership and offer lots which are not individually registered but are rented to individual tenants. b) The development will be assessed in terms of i site planning considerations such as - project size: minimum of 5 acres - the adequacy of recreational and commercial facilities - the attractiveness of the surrounding environment - landscaping - private open space - convenient access - set-backs and separation distances - storage provision - the adequacy of roadways and parking areas ii the adequacy of proposed traffic controls iii compliance of water, fire mains and sewer systems; utility lines; and heating fuel services with Provincial regulations iv the adequacy of proposed mail service facilities, and v the adequacy of proposed park management.
FORM OF ASSISTANCE:	Loans of up to 85% of the lending value of the park, as determined by AHMC, and at interest rates specified by AHMC are available to mobile home park developers. The amortization period is up to 25 years with a 5 year term.
APPLICATION PROCEDURE:	Developers apply directly to AHMC.
FURTHER INFORMATION:	Contact an AHMC office at any of the addresses given in the Appendix.

ALBERTA MUNICIPAL HOUSING INCENTIVE PROGRAM

RESPONSIBILITY: Municipal Housing Branch, Financial Assistance Division, Department of Housing.

PURPOSE:

1. To promote the construction of medium density housing and economic land development.
2. To help municipalities finance the costs of growth.

DESCRIPTION: Under this Program, Department of Housing will provide grants to municipalities of $500 to $2000 for each eligible dwelling unit which is constructed in a municipality.

ELIGIBLITY:

1. Municipality — All municipalities are eligible.

2. Dwelling — Eligible units must be

a) self-contained
b) constructed for permanent occupancy
c) meet the Alberta Building Code and local building bylaws
c) meet the following net density* requirements:

i For Calgary & Edmonton
10 units per net acre or 24.7 units per net hectare
Maximum lot size: 4400 ft.^{2} or 408.7m^2

ii For Other Municipalities
8 units per net acre or 19.8 units net hectare
Maximum lot size: 5500 ft.^{2} or 510.9m^2

* Net density calculations are based on net area. The net area is a parcel of contiguous land under common ownership, including associated grounds or a residential building, or buildings, provided for the private use of the occupants.

Density calculation differs between condominium and rental, and freehold. With condominium and rental, open spaces and rights of way are considered to be part of the net area. When roads are dedicated to the municipality, only then can rights of way be deducted. In the case of freehold, open spaces and rights of way are not considered to be part of the net area.

3. Mobile Home Sites — To be eligible, mobile home developments must comply with local building bylaws and the above density requirements.

ALBERTA MUNICIPAL HOUSING INCENTIVE PROGRAM (Continued)

FORM OF ASSISTANCE:

Grants to municipalities are based on the rate of new housing production in relation to production in previous years and the number of eligible units built. Housing production levels are measured against the base level which is the average number of new dwellings started in a municipality over the last three years. Grants will be awarded as follows:

a) For production between 0% and 50% of the base level, $500 per eligible unit.*

b) For production in excess of 50% up to and including 75% of the base level, $1000 per subsequent eligible unit.

c) For production in excess of 75% up to and including 100% of the base level, $1500 per subsequent eligible unit.

d) For production exceeding 100% of the base level, $2000 per subsequent eligible unit.

APPLICATION PROCEDURE:

Municipalities interested in the Program must complete and submit a copy of the monthly Housing Production Report available from the Municipal Housing Branch or the Statistics Canada Building & Demolition Permit monthly summary report to the Program Office on a regular basis throughout the year. When eligible units are well under construction, the fully completed application form(s) building permit(s) and site plan(s) is/are to be sent in.

NOTE: Eligible housing units must be started by June 30, 1984 and applications for grants for these units must be submitted by December 31, 1984.

FURTHER INFORMATION:

Contact the Program Office at the address given in the Appendix.

* This condition was announced September 28, 1981 and is retroactive to January 1, 1981.

MUNICIPAL ASSISTANCE PROGRAMS

REVOLVING TRUNK SERVICING PROGRAM

RESPONSIBILITY: Alberta Home Mortgage Corporation (AHMC)

PURPOSE: To increase the supply and help stabilize the price of serviced lots and to reduce the financial burden of growth on municipalities by providing funds to finance major underground water and sewer services in Alberta.

ELIGIBILTY:

1. Client — All municipalities are eligible to use the fund. Private corporations are also eligible if the municipality approves the project and executes the Master Agreement.

2. Project — Eligible items for projects for offsite or oversized water and sewer facilities are in the following catagories:

a) water trunks, pump stations and distribution system reservoirs,
b) storm sewer trunks and major storm water management facilities,
c) sanitary sewer trunks and lift stations.

FORM OF ASSISTANCE: Subject to the execution of a Master Agreement between AHMC and the municipality and, if applicable, the developer, AHMC will construct and initially own the facilities. The Master Agreement establishes, among other things:

- the maximum capital cost to be funded by AHMC.
- the developable hectares within the benefitting area.
- the term for repayment of the capital cost and the financing charges.
- the municipality's obligation to purchase a minimum 50% interest in the facility within a 10 year period. This obligation is offset by guarantees of the major land owners within the benefitting area.
- the applicant's (municipality or developer) responsibility to negotiate rights-of-way for constructing the approved facilities on behalf of AHMC.
- the municipality's responsibility to purchase a proportional undivided interest in the facility prior to issuing a Development and Servicing Agreement for land within the benefitting area. Purchase funds are provided by the benefitting land owner.

REVOLVING TRUNK SERVICING PROGRAM (continued)

APPLICATION PROCEDURE:	Municipalities or private corporations apply to AHMC. AHMC approval is subject to all necessary authorizations by planning authorities, Alberta Environment, etc. for the project.
FURTHER INFORMATION	Contact the Director of Land Programs at AHMC's head office.

MUNICIPAL ASSISTANCE PROGRAMS

ALBERTA RESIDENTIAL/LAND PROGRAM

RESPONSIBILITY: Alberta Housing Corporation (AHC)

PURPOSE: To assist in the provision of an adequate supply of residential housing lots at reasonable costs to meet the housing needs of Albertans.

ELIGIBILITY: Priority areas for the Program include:

-Areas where a monopoly situation has developed to the point where the private sector is charging prices far exceeding cost and a reasonable profit.

-Areas that have a definite requirement, but the private sector is unwilling or unable to become involved.

-Areas that have a definite requirement but the municipality is unable to help itself because of financial or technical inadequacies.

-Areas that anticipate a significant urban growth as a result of the Province's balanced industrial growth program.

-Areas where a need exists and the servicing capacity is available, in order to relieve the demands being placed on larger urban centers.

FORM OF ASSISTANCE:

1. Land Banking: AHC secures land for a municipality which the municipality has approved or anticipates for future residential development according to a Residential Land Assembly Agreement. The municipality may purchase any portion of the land for development at any time. The cost of the land purchased at the time is the original cost of that portion plus holding costs. Holding costs are prorated over the entire project. All land must be purchased by the municipality within 15 years.
2. Land Development: AHC purchases and develops land for a municipality in accordance with a Residential Land Development agreement and under the following conditions:
   a) Developed lots are sold to contractors or to the public on a fully prepaid basis
   b) Lots bear a prorated portion of holding costs
   c) Lots are usually developed to the prevailing municipal standard
   d) Upon the expiry of the agreement, all unsold lots must be purchased by the municipality.
3. AHC may also act on its own or as an agent for a municipality or on the advice of a Planning Authority, assemble land for the long term in which a Residential Land Assembly Agreement is not necessary.

APPLICATION PROCEDURES: Municipalities apply to AHC by means of Resolution-in-Council.

FURTHER INFORMATION: Contact an AHC office at any of the addresses given in the Appendix.

LODGE ASSISTANCE PROGRAM

RESPONSIBILITY:	Alberta Housing Corporation.
PURPOSE:	To provide financial assistance to senior citizen lodge foundations to reduce the amount of requisitions to the contributing municipalities.
ELIGIBILITY:	All lodge foundations constituted pursuant to Section 9 of The Senior Citizen Housing Act are eligible for assistance.
FORM OF ASSISTANCE:	This program will cover a portion of the foundation deficits; and the level of assistance is determined on the basis of the actual deficits of the foundation and the total equalized assessments of the foundation for the year in which the operation deficits occur. i) For foundations who have a large tax base and whose deficits are under one mill equalized assessment, Alberta Housing Corporation will provide 25% of the deficits, but will not finance the portion of deficits which is above 30% of the foundation's total expenditures. ii) For foundations whose deficits are equal to or greater than one mill equalized assessment, the Corporation will provide 50% of the deficits, but will not finance the portion of deficits which is in excess of 30% of the foundation's total expenditures.
APPLICATION PROCEDURES:	The foundation must submit an application together with its annual audited financial statement to Alberta Housing Corporation.
FURTHER INFORMATION:	Contact the Program office at the address shown in the Appendix.

MUNICIPAL ASSISTANCE PROGRAMS

ALBERTA INDUSTRIAL LAND PROGRAM

RESPONSIBILITY: Alberta Housing Corporation (AHC): financial assistance and implementation.

Department of Tourism and Small Business (DTSB): information input.

PURPOSE:

1. To help municipalities provide an adequate supply of serviced land for industrial purposes, at reasonable costs where need is determined.
2. To promote the implementation of the Province's policy of decentralizing industrial growth to smaller communities.

ELIGIBILITY: The following areas will be given priority:

- areas where demand exists, but where the private sector is unwilling or unable to act
- areas where demand exists, but where the municipality is unable to develop land because of financial or technical inadequacies
- areas which anticipate significant urban growth, which will require additional serviced industrial land.

FORM OF ASSISTANCE:

1. Land Assembly: AHC secures and holds land for a municipality. The municipality may purchase any portion of the land for development at any time. The cost of the land purchased at any time is the original cost of that portion plus holding costs. Holding costs are prorated over the entire project. All land must be bought by the municipality within 15 years of the original purchase.
2. Land Development: AHC secures and develops the land under the following conditions:
   a) Developed parcels are sold to the municipality on a cost recovery basis.
   b) Land is usually developed to the prevailing municipal standard except that certain minimum standards will apply.
   c) Eligible costs under the Program will be determined jointly by the municipality and the Provincial approving authorities.
   d) The municipality is responsible for marketing the land.
   e) Individual lot purchases by the Municipality must be paid for in full, to the Corporation, at time Municipality sells to third party.

APPLICATION PROCEDURE: Municipalities approach the Alberta Housing Corporation or the Department of Tourism and Small Business for an explanation of the Program. Application procedures are outlined at a meeting with T&SB, AHC and the municipality.

FURTHER INFORMATION: Contact an AHC office at the address given in the Appendix, or Tourism and Small Business.

INNOVATIVE HOUSING GRANT PROGRAM

RESPONSIBILITY:	Planning and Research Branch, Policy and Planning Division, Department of Housing.
PURPOSE:	To assist research and innovation to reduce housing costs, to conserve energy and to increase the viability of alternative forms of housing.
ELIGIBILITY:	
1. Clients:	Developers, house-builders, municipal governments, institutions, non-profit groups and individuals are eligible.
2. Scope:	Proposals to carry out research, design studies and, on occasion, construction work will be considered. Administrative costs, interest, taxes, insurance, permits, fees, and other "soft" costs are ineligible.
FORM OF ASSISTANCE:	Successful applicants will be given grants depending on the scope and type of the project. The grants are intended to supplement proponents' contributions and possibly those of other sponsors. Full funding will only be considered in exceptional circumstances.
APPLICATION PROCEDURES, and FURTHER INFORMATION	Further information and application forms are available from the Planning and Research Branch, Policy and Planning Division, Department of Housing at the address shown in Appendix.

MOBILE HOME LOAN INSURANCE PROGRAM

RESPONSIBILITY: Alberta Home Mortgage Corporation (AHMC)

PURPOSE: To provide approved lenders with investment loss protection in the event that payments on mobile home loans are not met by the borrower. AHMC underwrites the program. Because the insurance reduces the risk to the financial institution, lenders may be able to provide up to 85 per cent financing towards the purchase and set-up of a mobile home to an overall maximum of $40,000 and may also offer a more favorable interest rate and longer amortization period.

ELIGIBILITY: An eligible mobile home is one that:

a) is new or used

b) is single or double wide

c) mets the appropriate CSA (Canadian Building Standards) building code

d) is not permanently affixed to a site

e) is on property the mobile homeowner owns, rents or has written permission to use

f) is a permanent residence

g) is located in Alberta

FORM OF ASSISTANCE: Assistance to mobile homeowners is provided indirectly. Because of the reduced risk to the lender, financial institutions are able to provide more favorable lending terms.

APPLICATION PROCEDURES: Financial institutions contact AHMC. Individuals contact their lender.

FURTHER INFORMATION: Contact and AHMC office at any of the addresses given in the Appendix.

HOUSING REGISTRY PROGRAM

RESPONSIBILITY: Policy & Program Development Branch, Policy & Planning Division, Department of Housing.

PURPOSE: To promote the establishment of housing registries which will

1) help households with housing problems to find appropriate housing, and
2) document basic information related to the housing problems of those households who seek assistance from the registries.

HOUSING REGISTRIES: There are eight housing registries funded by Department of Housing:

Edmonton:	Senior Citizens Housing Registry operated by Society for the Retired and Semi-Retired;
	Accessible Housing Registry operated by the Handicapped Housing Society of Alberta; and
	Operation Friendship and Boyle Street Community Services Co-op are two registries for hard-to-house people.
Calgary:	Senior Citizens Housing Registry operated by Kerby Centre; and
	Handicapped Housing Registry operated by Society for Housing of Physically Handicapped Young Adults.
Lethbridge:	Senior Citizens Housing Registry operated by the City of Lethbridge.
Medicine Hat:	Senior Citizens Housing Registry operated by the City of Medicine Hat.

FORM OF ASSISTANCE: Annual grants are provided to approved non-profit groups.

FURTHER INFORMATION: Contact the Policy & Program Development Branch at the address shown in the Appendix.

APPENDIX

Contact for further information

A. DEPARTMENT OF HOUSING

PROGRAMS | CONTACTS

1. Mortgage Interest Reduction Program

Mortgage Assistance Branch
Department of Housing
P.O. Box 4020
EDMONTON, Alberta T6E 4S8
Phone: 422-4400
CALGARY (toll free)
Phone: 1-800-642-3811
ALBERTA RESIDENTS (toll free)
Phone: 1-800-642-3822

2. Co-operative Housing Action Program

HEAD OFFICE
EDMONTON
10183 - 112 Street
T5K 1M1
Phone: 427-4520

Edmonton Regional
10183 - 112 Street
T5K 1M1
Phone: 427-4592

CALGARY
#100, 112-28 St. S.E.
T2A 6J9
Phone: 273-7343

GRANDE PRAIRIE, Alberta
#1001, 10320-99 Street
Provincial Building
T8V 6J4
Phone: 539-2167

RED DEER
3rd Floor,
Parkland Sq.
4901 - 48 Street
Phone: 343-5257

FT. McMURRAY
Phone: 791-7000
Contact HEAD OFFICE
Phone: 427-4592

PEACE RIVER
Box 36 Bag 900
Provincial Building
9621 - 96 Avenue
TOH 2XO
Phone 624-6397

WESTLOCK/HINTON
Contact HEAD OFFICE
Phone: 427-8585

BONNYVILLE
Provincial Building
OTA OLO
Phone: 826-6104

3. Unique Homes Assistance Program

Municipal Housing Branch
Financial Assistance Division
Department of Housing
10050 - 112 Street, 3rd Floor
EDMONTON, Alberta T5K 2J1
Phone: 427-0143

APPENDIX

Contacts for further information

A. DEPARTMENT OF HOUSING

	PROGRAMS	CONTACTS
4.	Rural Home Assistance Program	Rural Home Assistance Program Slave Lake Development Building P.O. Box 1250 SLAVE LAKE, Alberta T0G 2A0 or Financial Assistance Division Department of Housing 10050 - 112 Street, 3rd Floor EDMONTON, Alberta T5K 1L9 Phone: 427-2696
5.	Seniors' Home Improvement Program OR Alberta Pioneers' Repair Program	Home Improvement Branch Main Floor, Devonian Building 11156 - Jasper Avenue Box 2453 EDMONTON, Alberta T5J 3B8 Phone: 427-5760 or Department of Housing 8th and 8th Building, 4th Floor 855 - 8th Avenue, S.W. CALGARY, Alberta T2P 3P1 Phone: 261-8464 ALBERTA RESIDENCE: (toll free) Zenith: 22093
6.	Alberta Home Conversion Program	Municipal Housing Branch Alberta Home Conversion Program 10050-112 Street, 3rd Floor EDMONTON, Alta. T5K 2J1 Phone: 427-0143
7.	Home Adaptation Program	Director Home Adaptation Program 11156 Jasper Avenue, Main Floor P.O. Box 2453 EDMONTON, Alta T5K 3B8 Phone: 427-5760

APPENDIX

Contacts for further information

A. DEPARTMENT OF HOUSING

PROGRAMS	CONTACTS
8. Alberta Municipal Housing Incentive Program	Municipal Housing Branch Alberta Municipal Housing Incentive Program 10050-112 Street, 3rd Floor EDMONTON, Alta. T5K 2J1 Phone: 427-0143
9. Innovative Housing Grant Program	Policy and Planning Division 10050 - 112 Street, 4th Floor EDMONTON, Alta. T5K 2J1 Phone: 427-8150
10. Housing Registry Program	Policy & Program Development Branch Policy & Planning Division 10050-112 Street, 4th Floor EDMONTON, Alta. T5K 2J1 Phone: 427-8164
	EDMONTON, Society for Retired and Semi-Retired, 423-5510
	EDMONTON, Handicapped Housing Society of Alberta, 433-9201
	EDMONTON, Boyle Street Co-op, 424-4106
	EDMONTON, Operation Friendship, 429-2626
	CALGARY, Society for Housing of Physically Handicapped Young Adults, 423-5510
	CALGARY, Kerby Centre (Seniors), 265-0661
	LETHBRIDGE, Senior Citizens Housing Registry, 320-3843
	MEDICINE HAT, Housing Registry (Seniors), 526-6762

APPENDIX

Contacts for further information

A. DEPARTMENT OF HOUSING

11. Extended Alberta Rental Investment Incentive Program:

a) Questions from individuals

Extended Alberta Rental Investment
Incentive Program Branch
Department of Housing
10050-112 Street, 3rd Floor
EDMONTON, Alta. T5K 2J1
Phone: 427-8161

Department of Housing
Southern Alberta Housing Program Branch
Room 102, 112 - 28 Street, S.E.
CALGARY, Alta. T2A 6J9
Phone: 261-8464

b) Questions from corporations

Corporate Tax Administration
Alberta Treasury
9811 - 109th Street
EDMONTON, Alta. T5K 2L5
Phone: 427-0712

APPENDIX

B. ALBERTA HOME MORTGAGE CORPORATION PROGRAMS

PROGRAMS	CONTACTS
1. Alberta Family Home Purchase Program 2. Shell Housing Program 3. Core Housing Incentive Program 4. Modest Apartment Program 5. Municipal Non-Profit Program 6. Mobile Home Park Development Program 7. Nursing Home Financing Program (Contact any AHMC office or the Department of Hospitals and Medical Care) 8. Residential Land Development Program	ALBERTA HOME MORTAGE CORPORATION HEAD OFFICE 500, 112 Professional Centre 10050-112 Street EDMONTON, Alta. T5K 2L7 Phone: 482-9222 EDMONTON BRANCH 10350-124 Street T5N 3V9 Phone: 482-7581 CALGARY BRANCH 112-28 Street S.E. T2A 6J9 Phone: 248-4535 LETHBRIDGE BRANCH 316-13 Street S. T1J 2V6 Phone: 329-8722 FORT McMURRAY BRANCH 204, 10003 Biggs Ave. T9H 1S4 Phone: 791-7384 RED DEER BRANCH 5913 Gaetz Avenue T4N 4C4 Phone: 343-7788 GRANDE PRAIRIE BRANCH 10020-102 Avenue T8V 0Z7 Phone: 539-2386 MEDICINE HAT BRANCH 101 Gershaw Terrace 266-4 Street S.W. T1A 4E5 Phone: 529-5285
9. Revolving Trunk Servicing	Director Land Development Program Alberta Home Mortgage Corporation Head Office
10. Mobile Home Loan Insurance Program	Contact any office listed above.

APPENDIX

C. ALBERTA HOUSING CORPORATION PROGRAMS

For further information contact any of the following AHC offices:

PROGRAMS

1. Community Housing Program
2. Senior Citizen Self-Contained Program
3. Senior Citizen Lodge Program
4. Staff Housing Program
5. Land Assembly and Development Program
6. Alberta Industrial Land Program
7. Transitional Housing Program Employment Counselling and Relocation Services:

   DEPARTMENT OF MANPOWER

   EDMONTON------- 427-4744
   SLAVE LAKE----- 849-2281
   BONNYVILLE----- 826-4155
   FORT McMURRAY-- 743-7207
   GRANDE PRAIRIE- 539-2347
   PEACE RIVER---- 624-6211
   HIGH LEVEL----- 926-2205
   GRAND CENTRE--- 594-7551
   WHITECOURT----- 778-4885
   ATHABASCA------ 675-2219

   OR contact any AHC Office.

8. Rural Mobile Home Program
9. Lodge Assistance Program
10. Rural Mobile Home Program on Indian Reserves

CONTACTS

HEAD OFFICE
Alberta Housing Corporation
9405 - 50th Street
EDMONTON, Alberta T6B 2T4
TELEPHONE: 468-3535

Southern Region Office
901 Centre Street N.
CALGARY, Alberta T2E 6P3
TELEPHONE: 276-9541

Fort McMurray Branch Office
10003 Biggs Avenue
FORT McMURRAY, Alberta T9H 1S4
TELEPHONE: 743-7100

Slave Lake Branch Office
406 10th Ave. N.E.
SLAVE LAKE, Alberta T0G 2A0
TELEPHONE: 849-3688

St.Paul Branch Office
4807-50 Avenue
ST.PAUL, Alberta T0A 3A0
TELEPHONE: 645-5600

Peace River Branch
9621-90 Avenue
PEACE RIVER, Alberta T0H 2A0
TELEPHONE: 624-5252

High Level Office
2nd Floor, Provincial Building
9812-101 Street
HIGH LEVEL, Alberta T0H 1Z0
TELEPHONE: 926-3155
926-3693

Edson Office
5907-09 4th Avenue
Box 670
EDSON, Alberta T0E 0P0
TELEPHONE: 723-6054

Individual Bands contact any AHC office or Department of Indian and Northern Affairs

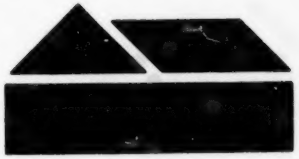
Number/
Numéro

3

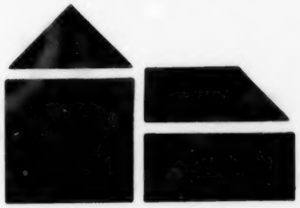
Design Preferences and Trade-Offs for Moderately Priced Housing in Alberta

Reference
Manual

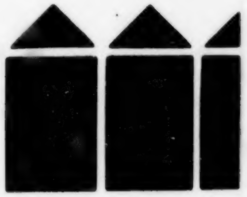
Single-
Detached
Units



Semi-
Detached
Units



Townhouse
Units



Design Preferences

Design Preferences and Trade-Offs for Moderately Priced Housing in Alberta

Reference Manual

Single-Detached Units

Semi-Detached Units

Townhouse Units

November 1983
ISBN 0-88654-043-7

Alberta
DEPARTMENT OF HOUSING

Preface

This reference manual is intended to assist the home builder and others who are involved in the design, production, marketing and financing of moderately priced housing in Alberta.

It is a summary of a comprehensive report on consumer preferences and trade-offs in the design of moderately priced housing in Calgary and Edmonton entitled **The Study of Design Preferences and Trade-Offs for Moderately Priced Housing in Alberta**. The study was funded by the Alberta Department of Housing and completed in February 1983. The work was technical and used surveys and various analytical methods to determine and analyze consumer preferences, and identify and evaluate possible trade-offs.

The challenge in preparing this summary has been to interpret the results of the work in a format that may be both readily understandable and easy to use. In organizing this manual, we have tried to help the reader to find those portions of greatest relevance quickly.

There is always the possibility that people may say one thing in a survey, but do another in the marketplace. Builders who choose to apply portions of the manual should still be guided by local market conditions.

This manual may help you confirm some things that you have suspected but never applied, and give you new insights into housing markets and the consumers of your particular product.

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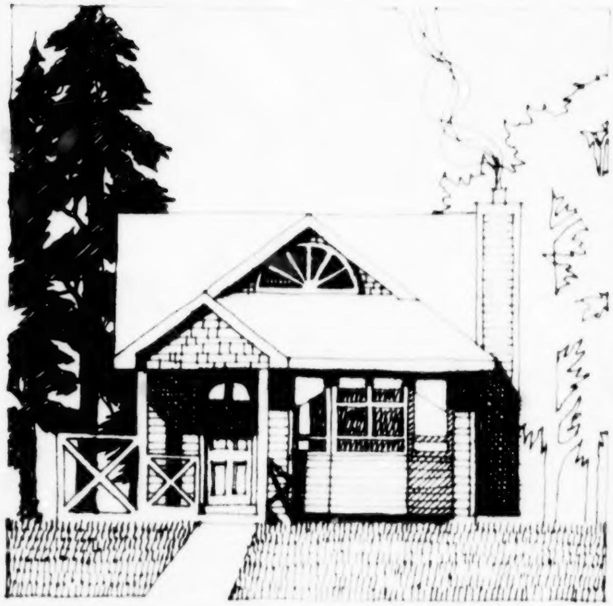

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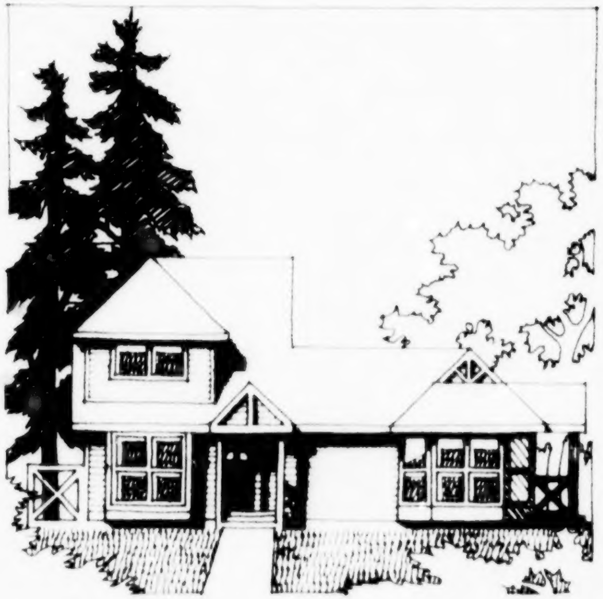

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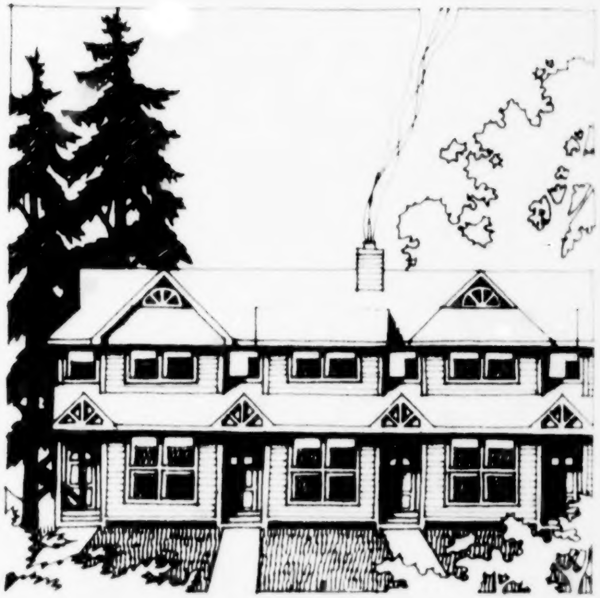

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Introduction

A major trend in recent years in the production of moderate and lower priced housing has been the reduction of capital input by providing things such as narrower lots, reduced unit sizes, increased densities, and the use of less expensive material. These reductions have been promoted, in Alberta at least, by a number of factors:

- High interest rates and the generally adverse economic conditions of the early 1980s have substantially reduced the purchasing power of new home buyers.
- High serviced land costs have forced builders to construct smaller houses on smaller lots in order to maintain affordable prices.
- The market for first-time buyers of lower priced housing has been dominated in Alberta since 1979 by the Alberta Home Mortgage Corporation (AHMC) subsidy programs. Houses built under these programs are governed by AHMC's lending guidelines.

This recent trend of providing less product in order to keep costs in line represents, to a large degree, a reversal of trends in the 1970s.

It was in this context that Alberta Housing and Public Works (now the Alberta Department of Housing), hired Strategic Development Services Limited in May 1982 to conduct the study of moderately priced housing. The purpose of the study was to investigate **design preferences and trade-offs for typical, moderately priced single-detached, semi-detached and row houses** in the new suburban homeownership markets in Calgary and Edmonton. The examination of design trade-offs was to be largely limited to those dealing with the housing unit and its lot, or in the case of row housing, the unit and its site. The study was completed in February 1983 and the final report is called "The Study of Design Preferences and Trade-Offs for Moderately Priced Housing in Alberta."

The major objectives of the study were as follows:

- the identification of features which new housing should contain to ensure a high standard of livability and value;
- the identification of design trade-offs which will result in improved livability at constant cost or which will maintain livability at reduced cost; and
- the identification of constraints on housing design and production which prevent the construction of preferred housing designs.

Approach to the Study

If one considers questions of housing design, it becomes clear that the existence of building codes, regulations and current industry practices generally ensure that more than the minimal requirements for structural soundness, safety and welfare in new housing are met. An approach which tried to identify all features that new housing should contain would therefore produce a lot of redundant information. Instead, the approach taken was to identify particular design aspects of new housing which were not meeting the requirements of home buyers. In other words, questions of housing design and quality were approached by initially identifying design solutions which result in dissatisfaction on the part of at least some home buyers.

Given this approach, the study proceeded through three major stages: analysis of current design solutions which result in unmet design requirements; development of alternative design solutions which attempt to meet these design requirements; and, evaluation of alternative design solutions in terms of consumer acceptability, cost efficiency and production feasibility.

ANALYSIS

Analysis focussed upon the identification of design requirements not being met by new, moderately priced, ground-oriented housing and consisted of three tasks:

- Existing reports and studies were reviewed to identify important considerations of livability and design requirements in housing. Past research on the relationship between housing costs and production, and between costs and livability was also reviewed.
- Group discussions were held with recent and prospective home buyers both in Calgary and Edmonton to explore specific consumer housing design preferences and possible design solutions. Interviews were also held with builders of new homes, planning officials in the two cities, and AHMC personnel in order to identify constraints to cost reductions and/or improved livability.
- The list of design requirements which were not being met were structured into closely connected sets of requirements and grouped in terms of external design requirements, internal design requirements, and construction-related design requirements.

These three categories provided the framework for developing design alternatives and for assessing buyer preferences and design trade-offs.

DEVELOPMENT OF DESIGN ALTERNATIVES

Design alternatives were developed on the basis of the set of unmet design requirements identified in the previous stage. To limit the number of alternatives, only those which generally met known consumer preferences, cost constraints, regulatory constraints and current building practices were included.

Known Buyer Preferences. Design alternatives known to rank low among buyers were excluded.

Cost Constraints. For the purposes of this study, a maximum house price of $80,000 was set as the market constraint in the development of design alternatives. Cost constraints were maintained by including cost-saving trade-offs which could compensate for construction cost increases resulting from some design alternatives.

From discussions with builders and buyers, three major areas were identified where cost reductions could be achieved:

- Cost savings of approximately $215 per square metre ($20 per square foot) could be achieved by decreasing unit area.
- Elimination of such commonly used facade features as window grilles and shutters, boxed windows, chimney chases, etc., could achieve cost savings in the order of $1,000.
- Completion of non-structural internal features such as painting, light fixtures and closet doors, carpeting, floor coverings and overhead kitchen cupboards could, in total, reduce overall costs by as much as $3,000.

Regulatory Constraints. An important objective of this work was to identify areas of conflict between buyer preferences and regulatory requirements, especially where such requirements result in increased costs. Regulatory constraints were viewed with a measure of flexibility and were not used to eliminate viable design alternatives. The major area of conflict appeared to be in the siting of the unit on the lot and this was subject to varying by-law requirements in Calgary and Edmonton.

Current Building Practices. The development of design alternatives fell within the following standard practices in Calgary and Edmonton at the time of the study:

- **Lot dimensions.** Lot sizes for moderately priced new housing tend to range in width from 7.6 to 10.7 metres (25 to 35 feet) and lot depths are typically 30.5 metres (100 feet).
- **Unit dimensions.** Floor areas range from a low of 83 square metres (895 square feet) to a maximum of 121 square metres (1,300 square feet). Unit widths are typically 6.1 to 7.6 metres (20 to 25 feet).
- **Unit style.** Four basic units are produced in the two housing markets; bungalow, bi-level, split-level and two-storey.
- **Materials and methods.** Wood frame construction with a full, poured concrete basement is most common. Stucco, aluminum or vinyl siding are the most commonly used exterior cladding materials.

On the basis of these practices, the following design parameters were adopted for the development of design alternatives:

For Single and Semi-Detached Units

- Lot dimensions of 9.1 by 30.5 metres (30 feet by 100 feet).
- A maximum developed area of 102 square metres (1,100 square feet).
- Open parking with one parking space per lot.

For Townhouse Units

- A total project size of 60 units at a minimum density of 42 units per hectare (17 units per acre).
- A maximum developed area of 102 square metres (1,100 square feet).
- Open parking at grade with one parking space per unit.

EVALUATION OF DESIGN ALTERNATIVES

The design alternatives resulting from the previous stage did not differ much from industry practices and generally fell within the range of alternatives available in new housing in Calgary and Edmonton.

The final stage of the study was the evaluation of these design alternatives using the following three methods:

- Surveys of prospective and recent buyers of new, moderately priced, single-detached houses and recent buyers of row and semi-detached houses were carried out in Calgary and Edmonton to evaluate the alternatives in terms of consumer preferences and to identify home buyer segments based on preferences.
- A review with builders was carried out to determine the variances in the costs of constructing particular design alternatives.
- Interviews with officials in the Building Standards Branch of the Alberta Department of Labour, the Design and Construction Branch of Alberta Home Mortgage Corporation and the Land Use Control Section of the City of Edmonton's Planning Department were carried out to assess the feasibility of relaxing regulations which restrict designs preferred by consumers.

Housing included in the survey of recent buyers was typical of moderately priced housing; i.e., under $85,000 and around 102 to 112 square metres of developed area, situated on a narrow lot in the 9 meter (30 feet) range. In total, about 50% of the households surveyed completed and returned the questionnaire: 388 responses were received from single-detached buyers; 43 from semi-detached buyers; and, 153 from townhouse buyers.

In evaluating consumer preferences, it was assumed that if a consumer preferred one alternative over another, the preferred alternative was perceived as increasing livability and had greater value in meeting the consumer's design requirements. Because of cost limitations set out in the study, buyer preferences were normally associated with trade-offs, i.e., "What would you give up or trade-off in order to get more of something else?" In all cases, when examining preferences, it must be remembered that one is dealing with degrees of preference rather than absolutes.

Information obtained from these three tasks resulted in the development of alternative designs which improve livability at constant cost and/or reduce costs without affecting livability for specific new home buyer segments or markets.

Organization of the Manual

This Reference Manual is organized according to the three housing types: the single-family dwelling, the semi-detached dwelling and the townhouse unit. Each section follows a common format. It begins with a discussion of the specific buyer types and their distinguishing features followed by a description of those design preferences and trade-offs that contribute to increased livability. Preferences common to all buyer types are discussed first, followed by preferences and trade-offs that distinguish particular buyer types. In each case, the information is organized in terms of external design requirements, internal design requirements and construction-related requirements. Cost saving trade-offs are discussed by housing type and each section concludes with a summary of the design implications of the preferences and trade-offs.

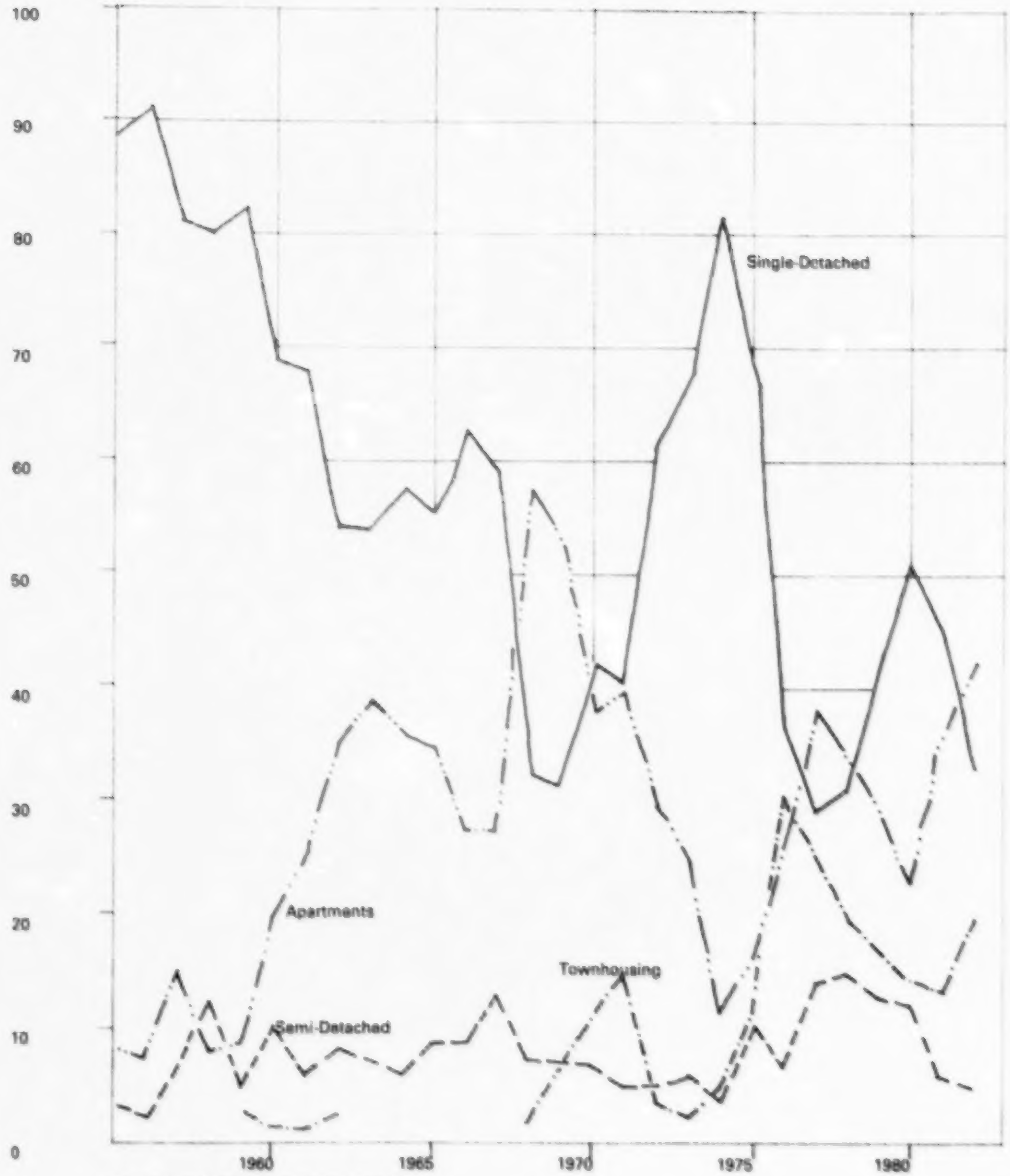
Photographs and drawings have been selected to illustrate the text. This material was created for this particular publication and was not used in discussions, surveys or other contact with the various respondents who participated in the study.

Limitations of the Manual

The study was limited to an investigation of design trade-offs in single-detached, semi-detached and townhouse units typical of what was being produced for the new homeownership markets in Calgary and Edmonton.

Changing Market Conditions

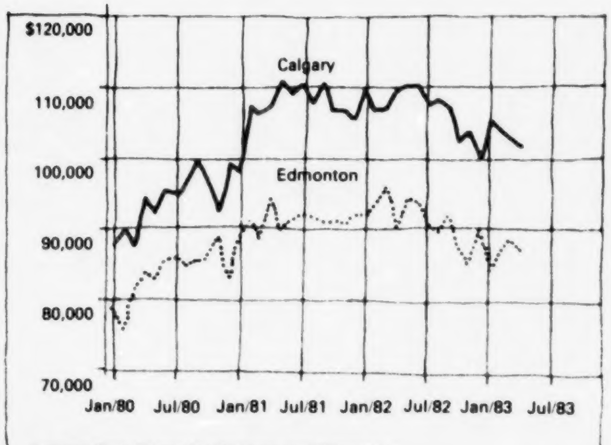
While it is doubtful that household characteristics will undergo significant change in the near future, it is conceivable that unit characteristics could undergo change in direct response to market conditions. Lot width and lot size are already increasing as a result of the reduced sales of serviced lots, and maximum developed area in the unit is increasing due to increased competition. Moreover, $80,000 signified a moderately priced home in 1982, but that figure is now significantly less. These market changes could result in increased livability because of the increased purchasing power of the buyer without need for significant trade-offs. In other words, the relationship between supply and demand has a major impact on what purchasers receive for their investment and market conditions may either increase or decrease the importance of design trade-offs.



Percentage Distribution of Dwelling Starts
By Unit-Type For Calgary

Cost Saving in Other Areas

When it comes to reducing cost, it must be recognized that perhaps the major advances to be made in cost reductions are outside the design of the unit itself. A reduction in interest rates has the most significant effect on overall housing costs. Subdivision costs certainly affect the price of the lot and cost reductions in this area could likely be achieved without necessarily affecting livability of the unit. There are a number of valid cost reduction alternatives that fall outside the scope of this study.



Average Sale Prices for Calgary and Edmonton

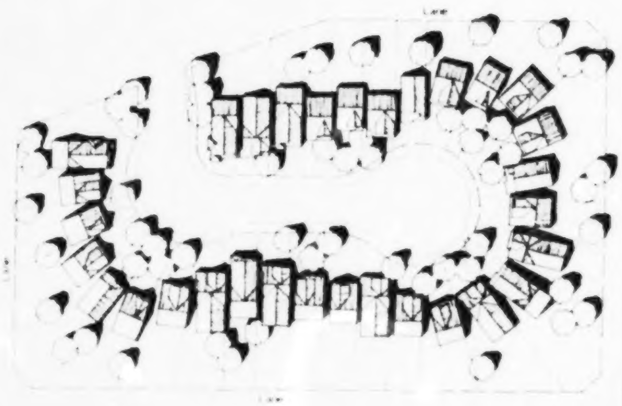
Methodological Limitations

It must be remembered that the findings of this study have been derived from a number of sources, including a review of relevant studies, interviews, discussion groups and actual surveys. The evaluation of buyer preferences for unit features and trade-offs among those features was based on the results of the surveys. Survey work has limitations, and the findings presented here should be approached with some caution and be considered in light of the reader's own experience in housing markets.

The study was specific to the Calgary and Edmonton markets and one should be cautious in generalizing the results to different markets. Both of these markets have been characterized in past years by relatively high land costs and an unusually large presence of government subsidy programs for first-time home buyers. The applicability of these results to other market areas is therefore limited.

Location

The study has not addressed neighborhood location as one of the possible trade-offs. This does not mean that location is not important or that consumers do not trade it for other things. Rather, a typical new suburb in Calgary or Edmonton was the assumed location throughout the study in order to focus on design preferences and trade-offs in the dwelling unit and lot.



Single-Detached Units

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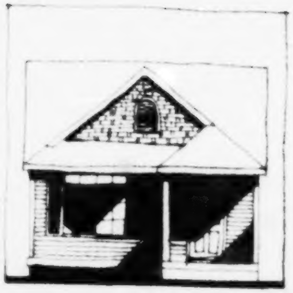
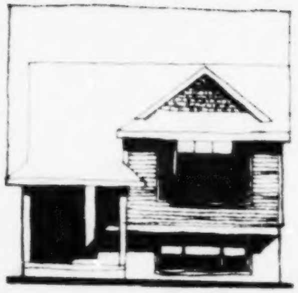
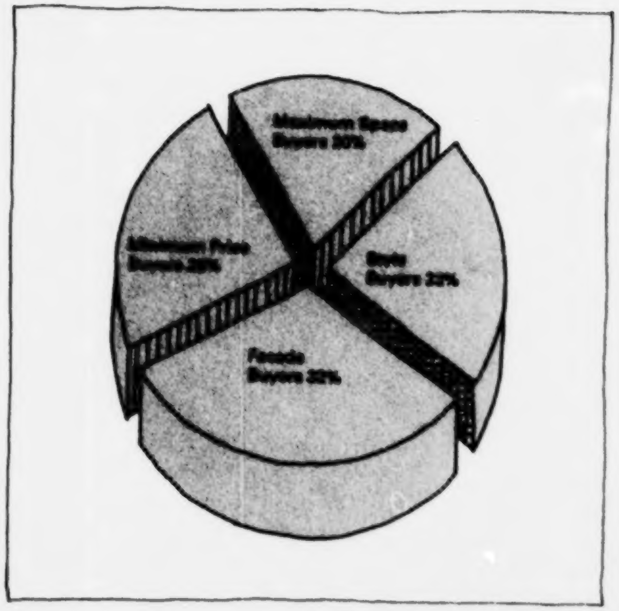




Buyer Types



The analysis and evaluation of buyer preferences, in terms of the design alternatives presented to them, identified four buyer types for single family detached units. These buyer types are defined on the basis of differences in preference for certain unit attributes.

Maximum Space Buyers

Twenty percent of single family house buyers were identified as Maximum Space Buyers. The distinguishing characteristic of prospective and recent buyers classified as belonging to this group is the high preference for or value placed on total unit size. Cost saving trade-offs involving reduced unit size are not possible with these buyers.

Households which were classified as Maximum Space Buyers were typically young married couples about half of which had one or two children. Most owned their own home, and about 20% of the prospective buyers included in this group were looking for their second or third home. The average household income was $32,000 and the average age of the respondents was 29.

Facade Buyers

For 32% of single-detached house buyers a decorative or fancy facade is very important. Facade treatment is so important to this buyer type that unit area, style and even number of bedrooms would be traded for a preferred facade treatment.

This group differed from the other groups mainly in its slightly higher proportion of prospective buyers. The average household income was $36,000 and the average respondent age was 28.

Style Buyers

Given that the house is situated on a narrow lot, most buyer types prefer a split-level style. This preference is especially pronounced in Style Buyers, which comprise 23% of single detached house buyers. The preference for a split-level style tends to exceed preferences for most other unit attributes.

Style Buyer households were very similar in household characteristics to Maximum Space Buyers. Most were young married couples, 58% of whom had no children. The average household income was slightly higher than for the Maximum Space Buyers ($36,000), and there were more two income households (61% vs. 55%).

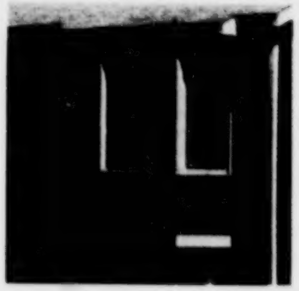
Minimum Price Buyers

Buyers in this group differ from other buyers primarily in the value placed on cost savings resulting from reduced unit area. A smaller unit size is preferred if cost savings can be realized. Twenty-five percent of single family house buyers fall into this category.

Households in this buyer group tend to be slightly more likely to own their present home than households in the other groups. Aside from this, however, differences in household characteristics are relatively minimal. Household income is slightly lower ($31,000) even though the proportion of two income households is similar to the other groups.

Common Preferences

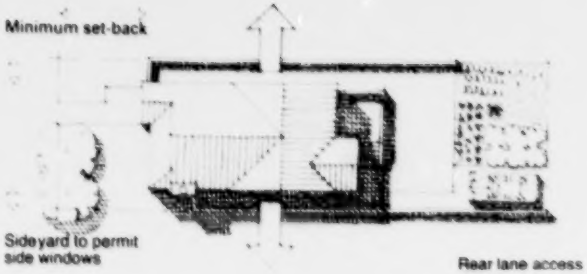
Although some major differences do exist between buyer types, buyer preference and presumably livability, can be enhanced in a similar manner for most single-detached buyer types.

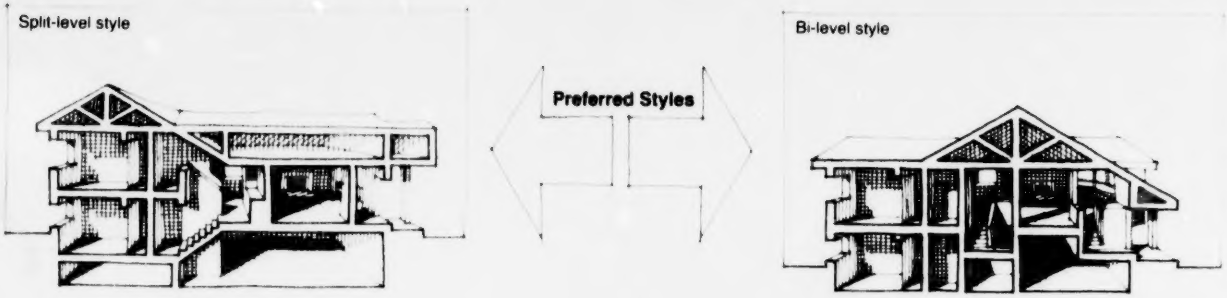


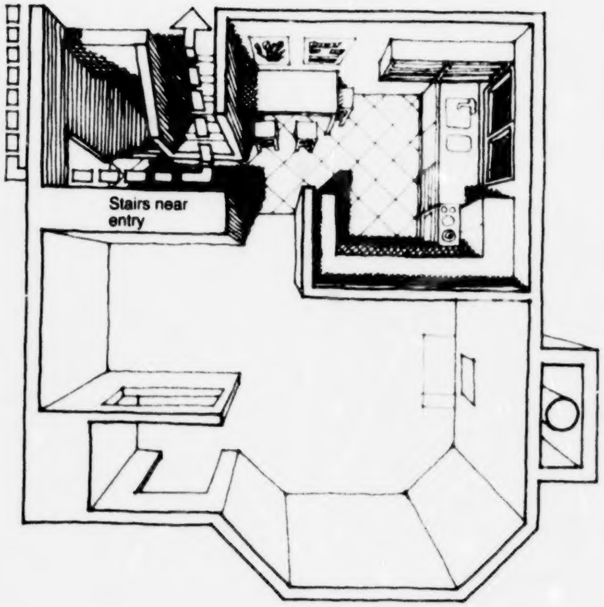
External Design Attributes

Buyer dissatisfaction with design aspects external to the unit are most commonly related to external appearance, circulation, space allocation, and natural lighting. Buyer satisfaction in these areas can be enhanced for most buyer types by:

- using split-level or bi-level styles with decorative facades emphasizing such structural features as chimney chases, boxed or bowed windows, and variations in roof elevations;
- minimizing front yard set-back to increase backyard space;
- providing rear lane access to parking; and
- providing sufficient side yard space to allow windows to be located on all sides of the unit.


Minimum set-back
Sideyard to permit side windows
Rear lane access


Split-level style
Preferred Styles
Bi-level style



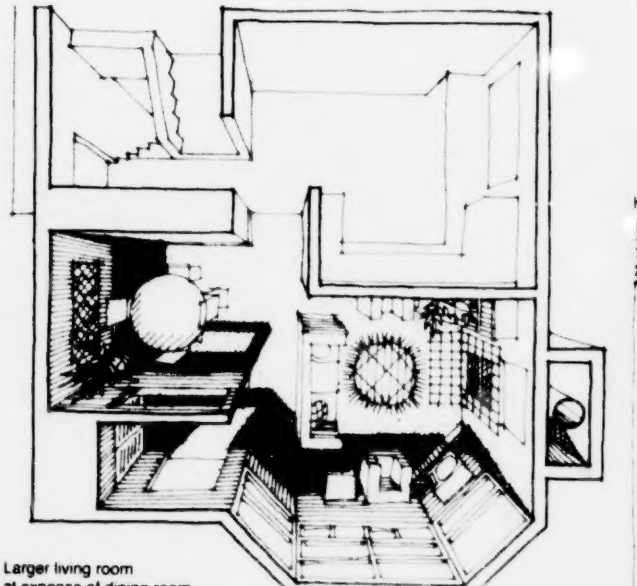
Internal Design Attributes

Buyer dissatisfaction associated with aspects of internal design are mostly concerned with circulation, space allocation, and kitchen design and layout. Attributes which increase buyer preferences are also fairly consistent across buyer types. Livability can be most enhanced by providing the following:

- three bedrooms;
- one-and-one-half baths with the half bath located near the second entry;
- a U-shaped kitchen counter layout with a window in the kitchen work area and sufficient space for an eating area in the kitchen;
- a larger living room at the expense of dining area; and
- stairways located near entries to the unit.

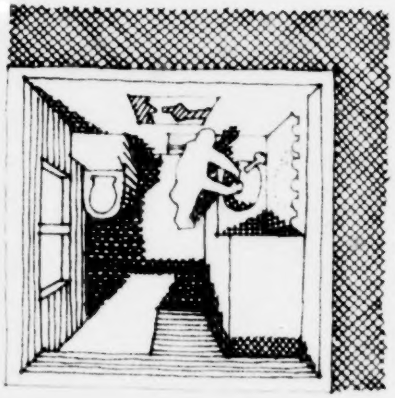
Construction-Related Attributes

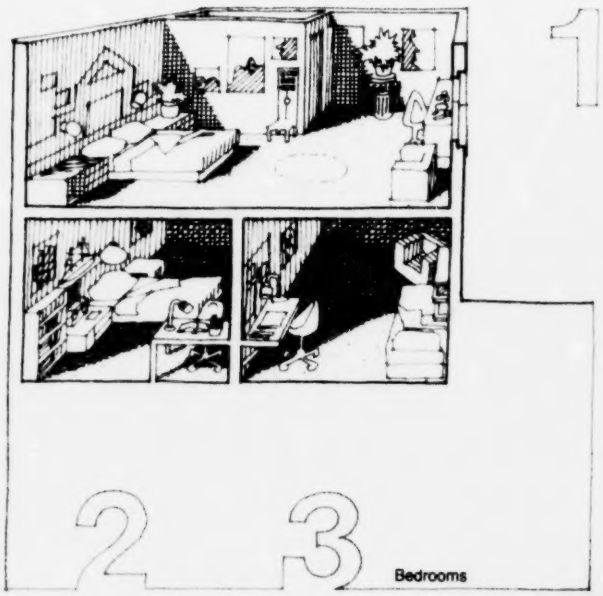
Quality of construction and workmanship are extremely important to single-detached buyers. Cost savings which can be applied to improving construction quality (or reducing unit price) can be realized through buyer completion of non-structural aspects of the unit. Aside from preferring to pay extra for upgraded insulation, most buyers, however, do not prefer to make trade-offs involving buyer completion of painting, flooring, lighting fixtures, closet doors, or kitchen storage space. Only Minimum Price Buyers are relatively indifferent to trading off buyer completion of light fixtures and closet doors for cost savings.



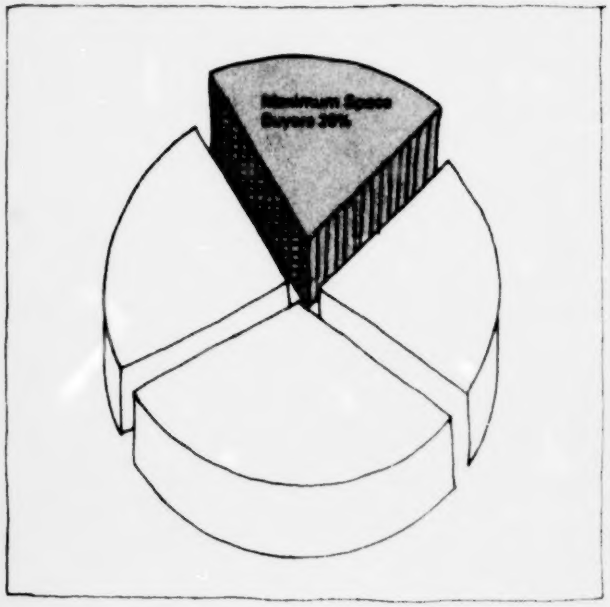
Larger living room
at expense of dining room

Half-bath

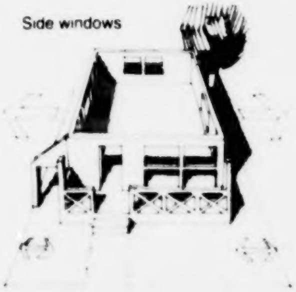




Maximum Space Buyers Preferences and Trade-Offs



Side windows



Trade-Offs in External Design Attributes

A distinguishing characteristic of Maximum Space Buyers is their unwillingness to compromise total unit area in exchange for saving on the total unit price. Some would trade a fancy facade for less unit area, but overall, area has a much greater importance than facade treatment.

Although most external design attributes are rated as being at least fairly important to the Maximum Space Buyer, three attributes tend to be the most important both in terms of buyer preferences and design constraints placed on other attributes.

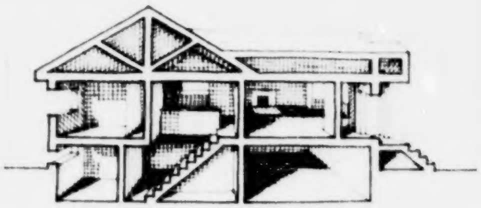
Unit Area. Few, if any, Maximum Space Buyers are willing to make trade-offs which result in a smaller sized unit. Cost savings on the total unit price of $215 per square meter are insufficient to compensate Maximum Space Buyers for reduced unit size. Only in two areas are some size reductions acceptable. Two-storey unit style is sufficiently unpopular that buyers in this group would prefer a split-level, even if it had 9 square metres less unit area. A decorative facade treatment would also be traded for 9.29 square metres (100 square feet) by some Maximum Space Buyers. A reduction of unit area by 18.58 square metres (200 square feet) for a saving of $4,000 cannot be compensated for in terms of other external design attributes.

Unit Style. Where lot dimensions are not a constraint, many buyers in this group (43%) prefer a bungalow style. However, where the lot width is constrained to 9.14 metres (30 feet), a split-level unit is most preferred. A bi-level style on a narrow lot is also relatively acceptable, whereas two-storey units and bungalows on lots of this width are less acceptable to Maximum Space Buyers. More unit area (18.58 square metres (200 square feet) in the case of a two-storey unit) would be required to compensate for the use of these two unit styles.

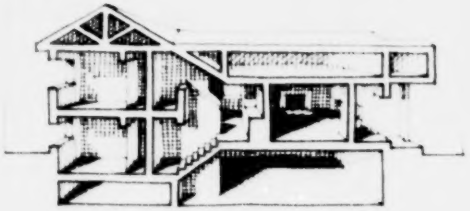
Window Location. Having windows on all four sides of the unit is much preferred by buyers in this group. In order that windows can be located on the side, building code requirements and land-use by-laws require increased separation spaces between adjacent units. Such requirements result in a narrower unit on a 9.14 metre lot. A narrower unit is less preferred by Maximum Space Buyers, although this reduced preference is offset by having side windows.

Preferred Styles Depend on Lot Width

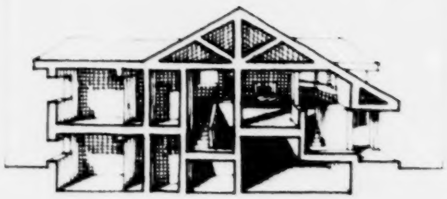
Bungalow style is preferred
if lot width is not constrained



Split-level style is preferred
if lot width is constrained

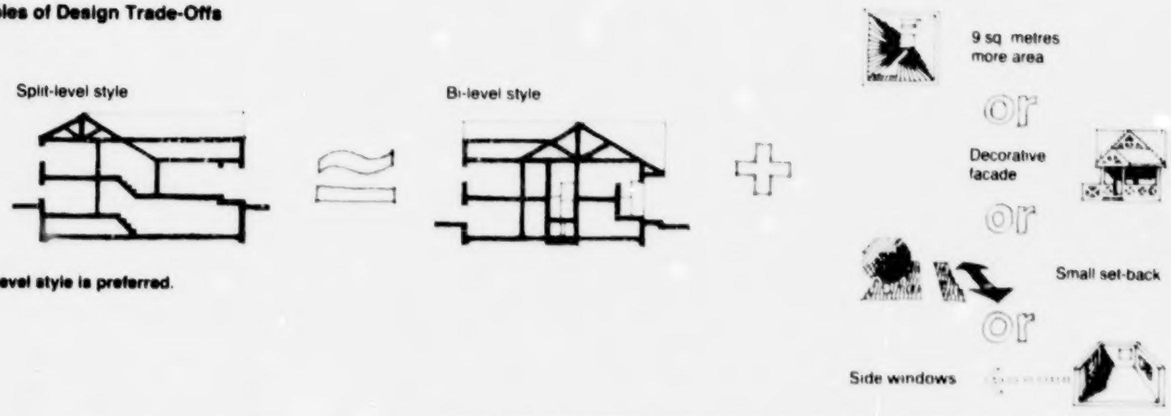


Bi-level style is also acceptable
if lot width is constrained



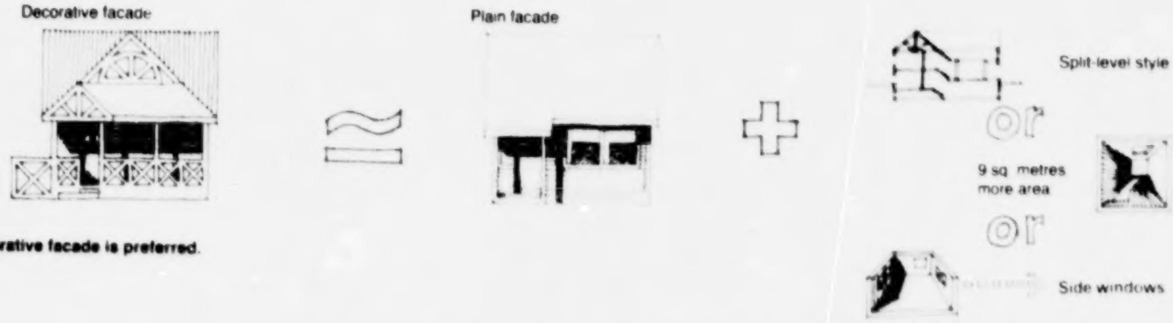
Other external design attributes tend to be of less importance to Maximum Space Buyers, and are to some extent constrained by the high preference associated with unit style, area and window location.

Examples of Design Trade-Offs



A split-level style is preferred.

Diminished preference for a bi-level style can be compensated for by inclusion of any of the above features if they are not provided in the split-level dwelling.



A decorative facade is preferred.

Diminished preference for a plain facade can be compensated for by inclusion of any of the above features if they are not provided in the dwelling with the decorative facade.

Unit Shape. Maximum Space Buyers prefer a rectangular shaped unit to an L-shaped unit having 9.29 square metres less area to compensate for increased construction costs, despite the L-shape having greater potential for variation in unit appearance and more flexibility in parking arrangements.

Parking Location. Lane access to backyard parking was generally preferred to front yard parking by buyers in this group. Given a wider lot which would not restrict window locations or unit width, Maximum Space Buyers would likely prefer a side drive to rear lane access.

Facade Treatment. Structural facade treatments such as a chimney chase, boxed windows, and variations in roof elevations are fairly important to Maximum Space Buyers. Decorative features such as window grills and shutters are of less importance. Facade appearance in general seems to be less important to Maximum Space Buyers than to buyers of other groups. A decorative facade can generally be traded for a 9.29 square metre reduction in unit area; however, a plain facade would be preferred over a greater reduction in unit area.

Front Yard Set-Back. For a given unit style, less front yard set-back will result in more backyard area. This trade-off is of only minor significance to Maximum Space Buyers. A 4.6 metre (15 feet) set-back is preferred by these buyers to a 7.6 metre (25 feet) set-back, but is of less importance than most other unit attributes.

Entry Locations. Space buyers tend to prefer both entries to be located on the sides of the unit, although most buyers are relatively indifferent to whether the main entry is located on the side or front.

Unit Width. A 7.6 metre unit is preferred over a 6.1 metre (20 feet) unit; however, having side windows makes the 6.1 metre unit preferable overall when situated on a narrow lot.

Maximum Space Buyers Preferences and Trade-Offs

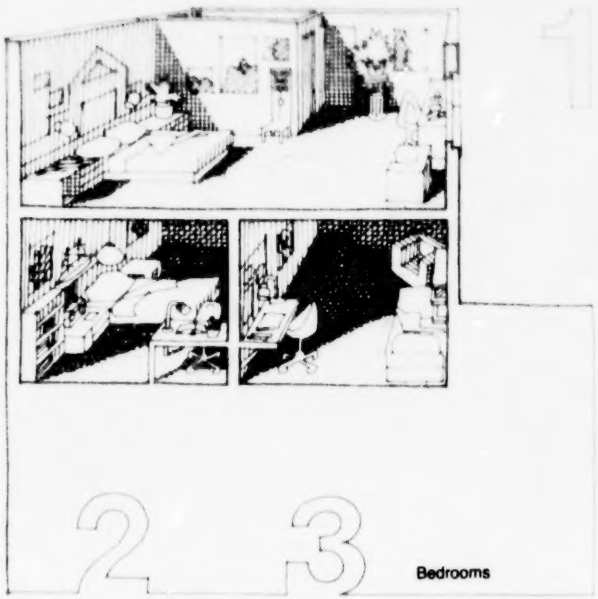
Trade-offs in Internal Design Attributes

Design attributes related to internal space allocation, room size and layout tend to be quite important to Maximum Space Buyers. In particular, three internal unit attributes are most preferred.

Half-Bath. The perceived value of a half-bath is such among Maximum Space Buyers that few, if any, are willing to forego a half-bath on the main floor for a $1500 saving. Ninety percent of these buyers would want a half-bath in the next new unit they purchase. The absence of a half-bath cannot be compensated for by any other unit attribute.

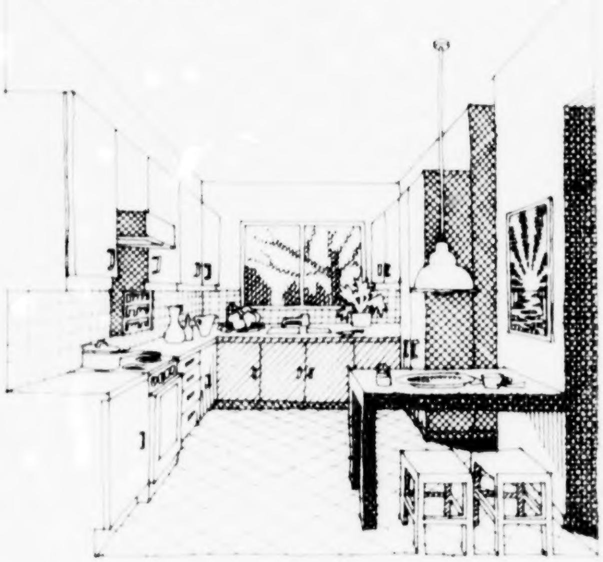
Number of Bedrooms. A large master bedroom and two smaller secondary bedrooms are preferred by Maximum Space Buyers over only two large bedrooms. About 20% of buyers in this group would even prefer four bedrooms in their next home.

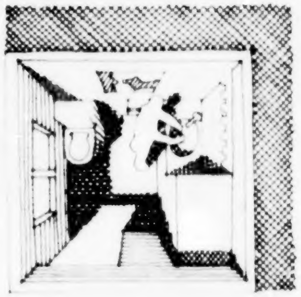
Kitchen Layout. Maximum Space Buyers prefer U-shaped kitchen layouts to L-shaped layouts, and the latter to "in-line" layouts. Kitchen space should be large enough to allow meals to be eaten in the kitchen. Lack of such space in the kitchen is difficult to compensate with any other attribute. Plain cupboard doors are preferred to styled ones.



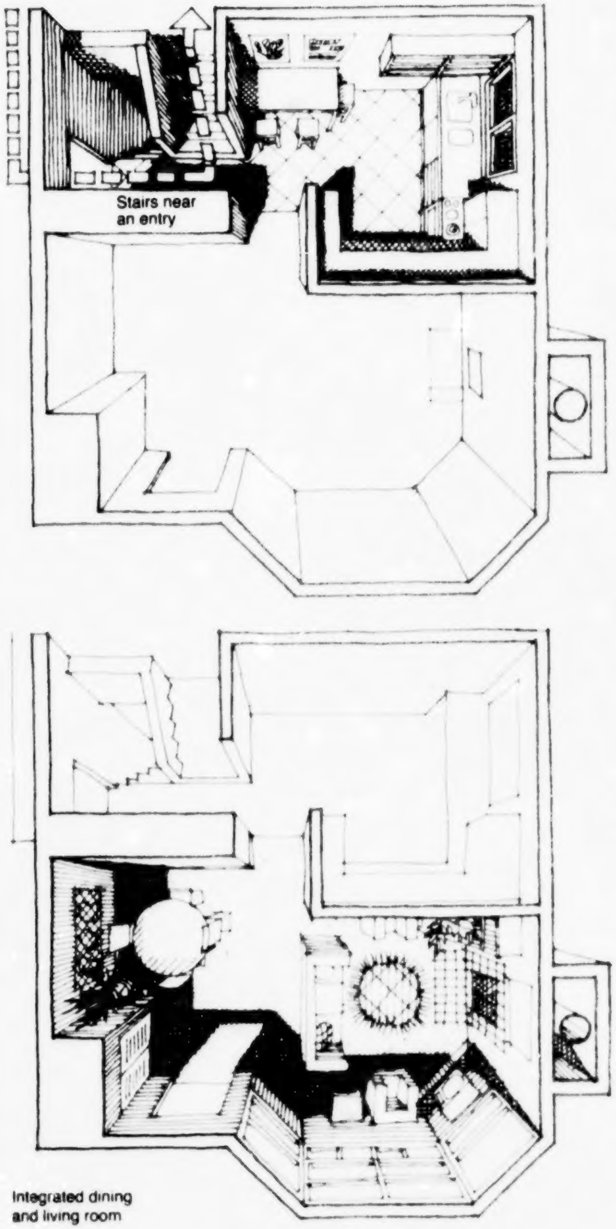
Bedrooms

U-shaped Kitchen
with an eat-in area





Half-bath



Integrated dining and living room

Other internal design attributes to be considered are as follows:

Dining Area Location. Maximum Space Buyers prefer the dining area to be integrated with the living room. This provides two choices in eating area, given their preference for an eat-in kitchen. The preference for this arrangement more than offsets the resultant decrease in living room size.

Stairway Location. Stairs which lead to another level should be located near an entry for the Maximum Space Buyer. In split-level style units, this preference may be difficult to realize.

Main Entry Foyer. An entrance hall or foyer is not important to this group. They prefer this area to be given over to living space.

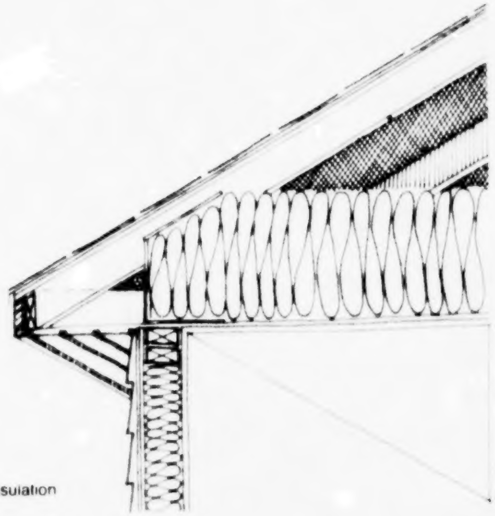
Second Entry. A sliding patio door is often used for second entries. Maximum Space Buyers tend to be relatively indifferent to whether a patio door or hinged door is used.

Although variations in internal design attributes can have a major effect on Maximum Space Buyer preferences, a considerable number of alternatives in internal layout and design are still possible.

Trade-Offs in Construction-Related Attributes

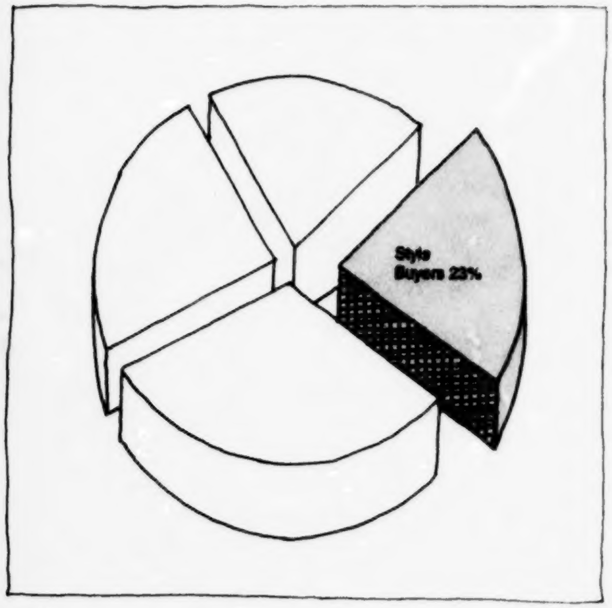
A completely finished house with upgraded insulation is most preferred by Maximum Space Buyers. The relative importance that construction related attributes have suggests that for Maximum Space Buyers these are the most important of any of the unit attributes examined.

Unfinished aspects of the housing unit, such as unpainted walls, or no floor finishes in trade for cost savings do not appeal to Maximum Space Buyers. Only if faced with a choice between a completed unit without a half-bath and an unfinished unit with a half-bath are buyers in this group somewhat more amenable to completing some non-structural aspects themselves. Space buyers are, however, willing to make some trade-offs for about $1000 worth of upgraded insulation — for example, all linoleum floors in lieu of carpet.



Upgraded insulation preferred

Style Buyers
Preferences and Trade-Offs

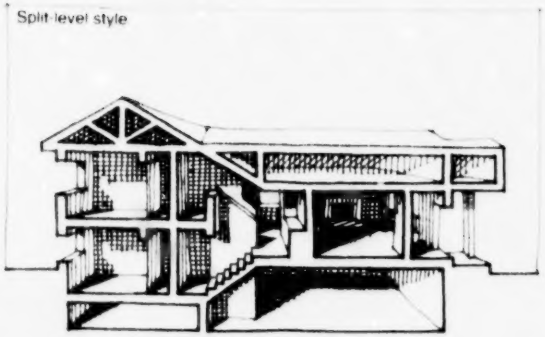


Trade-offs in External Design Attributes

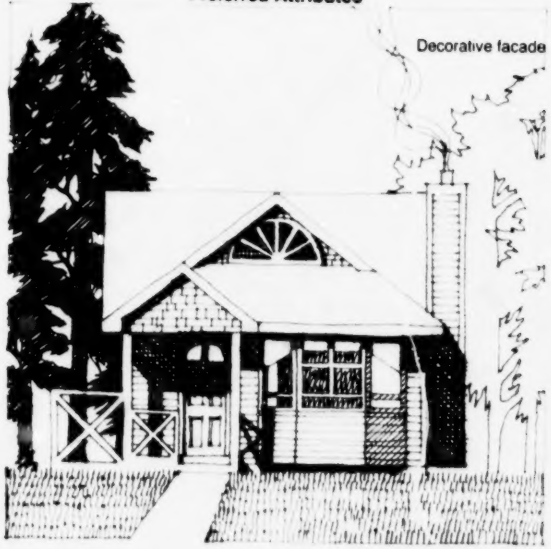
Unit style and external appearance are very important preferences of Style Buyers. Most would prefer a slightly smaller split-level unit with an attractive facade to a larger, plainer unit. For most buyers in this group, unit area is preferred to cost savings on unit price, although this is of lesser importance than other unit attributes. Two unit attributes associated with external design are most important to Style Buyers.

Unit Style. Unit style is more important to the Style Buyer group than to any other group. The majority of buyers in this group (52%) prefer a split-level style irrespective of lot dimensions. The only trade-off that Style Buyers would make for unit style is a decorative facade, i.e., a bi-level or bungalow with a fancy facade being preferred to a split-level with a plain facade. No external design feature, however, would be sufficient compensation for a two-storey style.

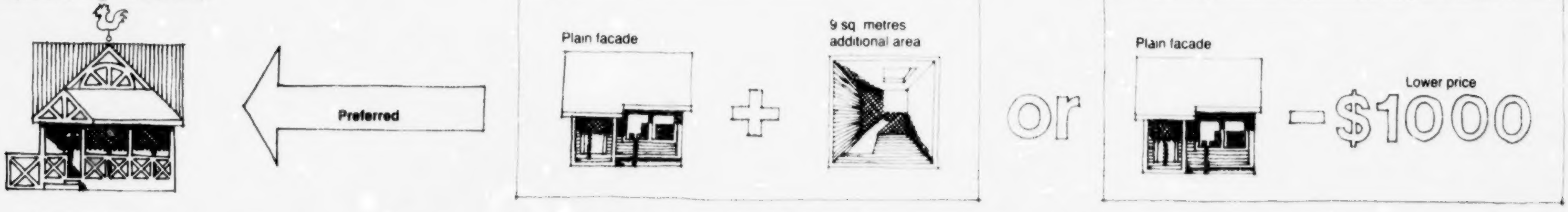
Facade Treatment. A decorative facade treatment is also very important to Style Buyers. Most buyers in this group would prefer a smaller unit (9 square metres less) with a fancy facade to a unit with a plain facade and a lower price ($1000 less), unless the fancy facade is on a two-storey unit.



Preferred Attributes

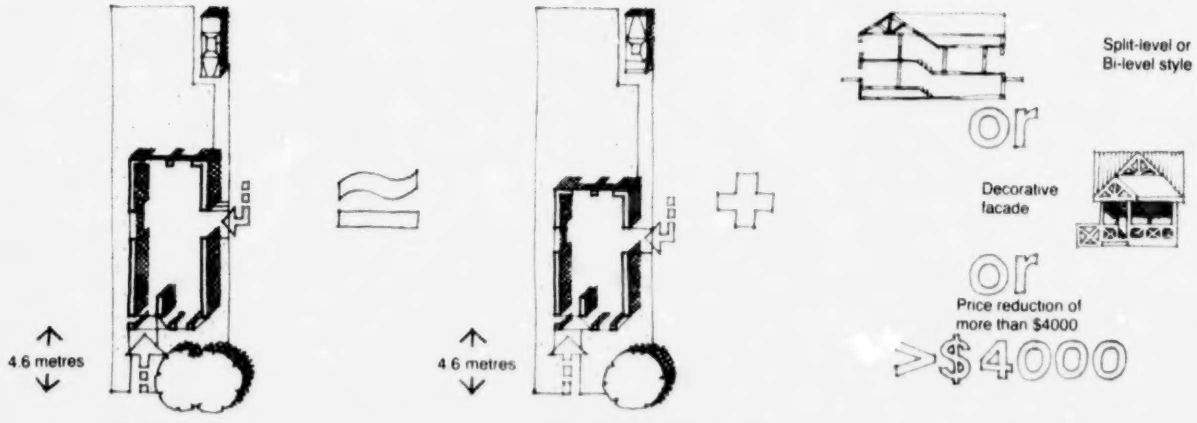


Example of Design Trade-Offs



A smaller unit with a decorative facade is preferred over a unit with a plain facade, even if it has a larger area or a lower price.

Examples of Design Trade-Offs

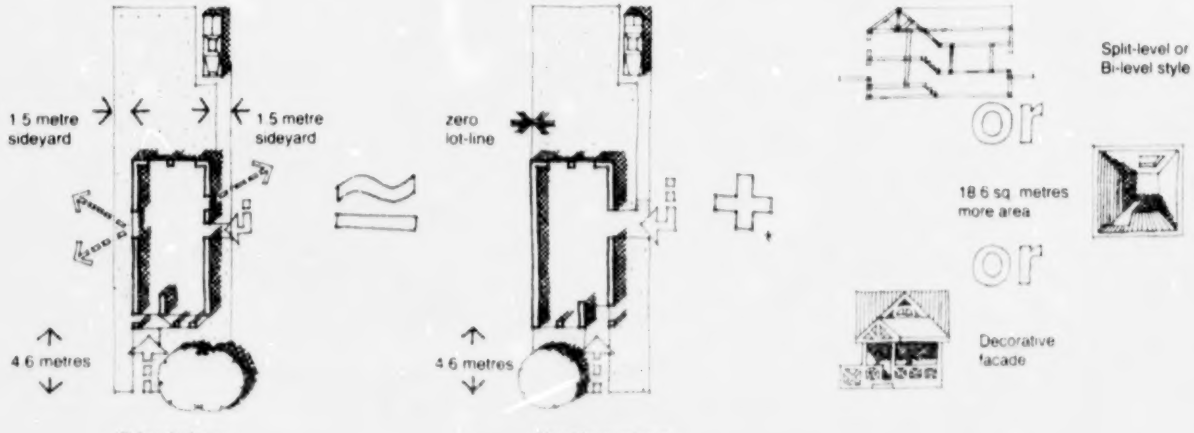

4.6 metres
≈
4 6 metres
+
Split-level or Bi-level style
or
Decorative facade
or
Price reduction of more than $4000
>$4000

No area reduction

A larger unit is preferred.

Area reduced by 18.6 sq metres

Diminished preference for a unit with an area reduction of 18.6 sq. metres (200 sq. ft.) can be compensated for by inclusion of the above features if they are not provided in the larger dwelling.


1 5 metre sideyard
1 5 metre sideyard
4 6 metres
≈
zero lot-line
4 6 metres
+
Split-level or Bi-level style
or
18 6 sq metres more area
or
Decorative facade

Side windows

A unit with windows on all four sides is preferred.

No side windows

Diminished preference for a unit with no side windows can be compensated for by inclusion of the above features if they are not provided in the dwelling with windows on all four sides.

In comparison to unit style and facade treatment, other external design attributes, although still important, are relatively less significant to Style Buyers.

Front Yard Set-back. A small 4.6 metre front yard and larger backyard area is preferred by Style Buyers. Only unit style, excepting a two-storey style, and decorative facade can compensate for a 7.6 metre front yard and smaller backyard.

Parking Location. Style Buyers tend to prefer rear lane access to parking to other alternatives.

Window Location. Buyers in this group prefer windows on all sides of the unit. Absence of windows looking into a side yard can be compensated for by a small front yard set-back, a split-level style, or a decorative facade.

Unit Area. Trade-offs in unit area are generally not accepable to Style Buyers. However, unlike Space Buyers, Style Buyers will accept a smaller unit and a lower price in order to get a unit other than a two storey, a decorative facade, backyard parking, or a small front set-back.

Unit Shape. A rectangular unit is preferred by buyers of this group to an L-shaped unit with 9.29 square metres less area. Preference for the rectangular shape will, however, be less if style, facade, set-back or window location preferences are not met.

Unit Width. Unit width is not particularly significant to Style Buyers. While most prefer a wider unit, they would accept a narrower unit in order to allow windows to be located on all sides.

Entry Locations. Style Buyers prefer front and back entry locations. However, if this is not possible due to unit style or other constraints, variations in entry locations are quite acceptable.

Style Buyers
Preferences and Trade-Offs

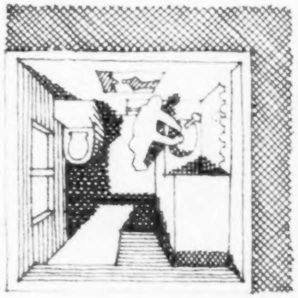
Trade-Offs in Internal Design Attributes

The most important internal design attribute to the Style Buyer group are number of bedrooms, a half-bath on the main floor, and kitchen layout.

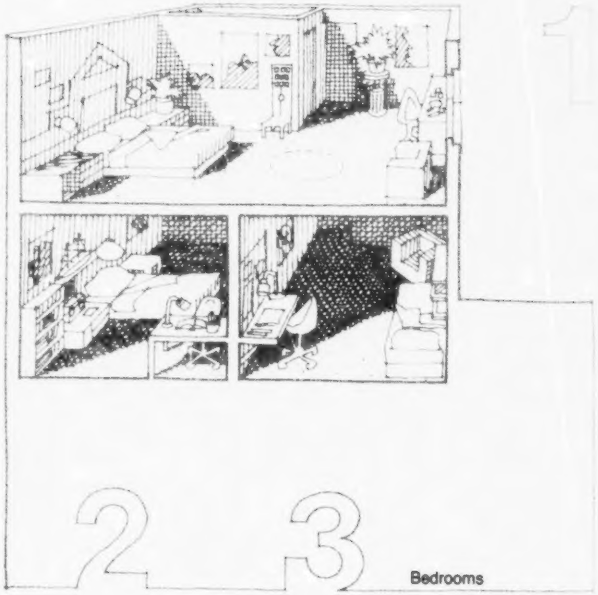
Number of Bedrooms. Number of bedrooms is the most important internal unit attribute. Any other internal attribute would be traded to provide three bedrooms — a large master bedroom and two smaller bedrooms.

Half-bath. Style Buyers will not trade a $1500 saving for loss of a half-bath on the main floor. Over 90% of these buyers want at least one half-bath in their next home. The only conditions under which they would forego a half-bath would be for a three bedroom unit or their preferred kitchen layout.

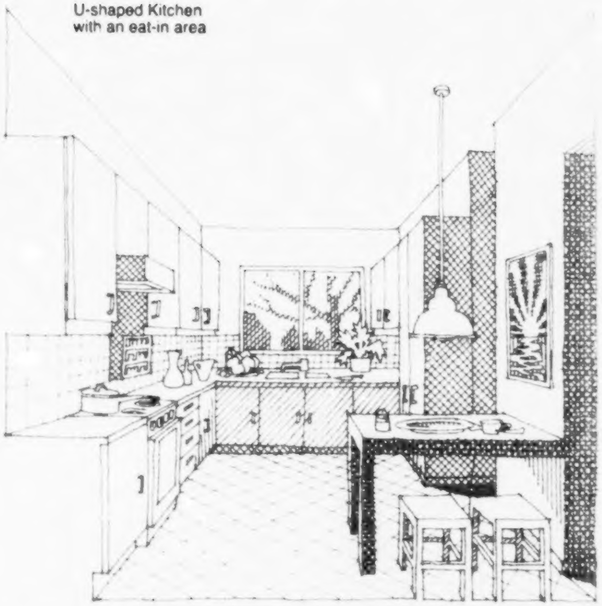
Kitchen Layout. A U-shaped kitchen counter layout is most preferred by buyers of this category, with "in-line" and L-shaped layouts being their second and third choices respectively. A combined kitchen/dining area is preferred over a dining/living area combination, although the preference is marginal. However, an eating area should be provided in the kitchen. Styled cupboard doors instead of plain doors are quite important to Style Buyers.



Half-bath



Bedrooms



U-shaped Kitchen
with an eat-in area

In comparison to kitchen design and layout, other internal design attributes have relatively less effect on Style Buyer preferences.

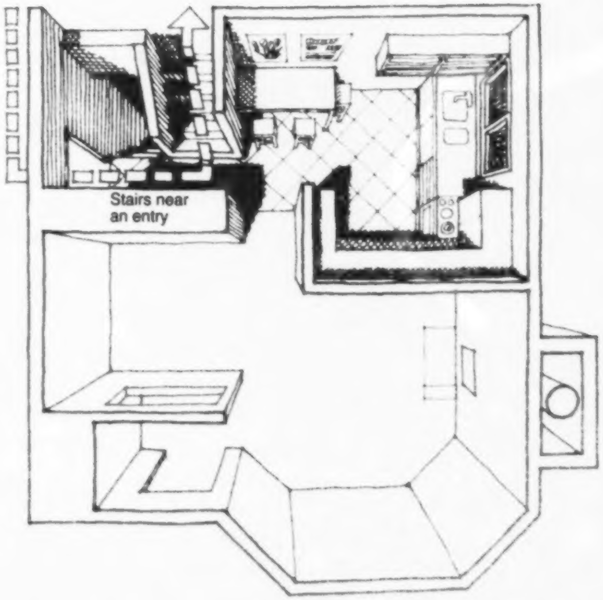
Foyer. A main entry foyer or hall which provides a transition from entry to living room is preferred.

Stair Location. Stairs should be located next to an entry, although this requirement may not always be compatible with style preference.

Second Entry Type. A hinged door rather than a patio door is preferred by Style Buyers for the second entry.

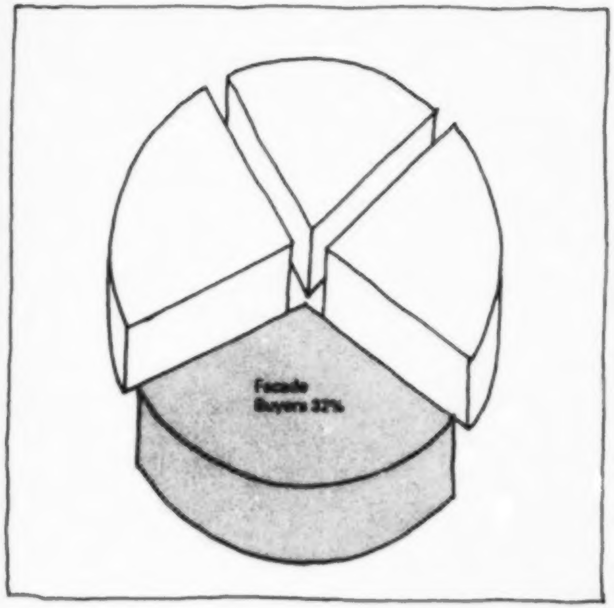
Trade-Offs in Construction-Related Attributes

Leaving non-structural attributes for buyer completion in return for cost savings is not acceptable to the Style Buyer group. This is especially true for finished flooring and painting of interior walls. However, upgraded insulation is highly valued by these buyers and a $1000 upgrading of insulation could be traded for buyer completion of some non-structural aspects.



Upgraded insulation preferred

Facade Buyers
Preferences and Trade-Offs



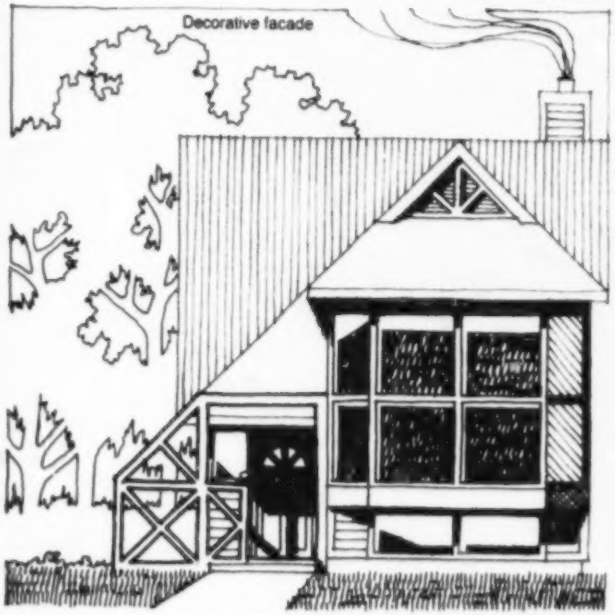
Trade-Offs in External Design Attributes

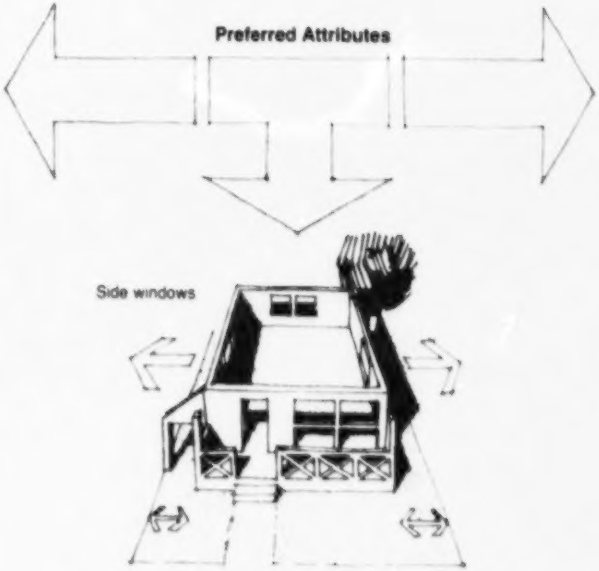
External design attributes tend to be either of major or minor importance to Facade Buyers; few are of moderate importance. Buyers in this group would much prefer to have a more extensive facade treatment in exchange for less unit area. Overall, total unit size is of less importance to these buyers than to Maximum Space or Style Buyers. Reductions in unit area have relatively little effect on preferences if these reductions are compensated for by savings on the unit price or a more complicated unit shape. Unit attributes most important to buyers of this group are:

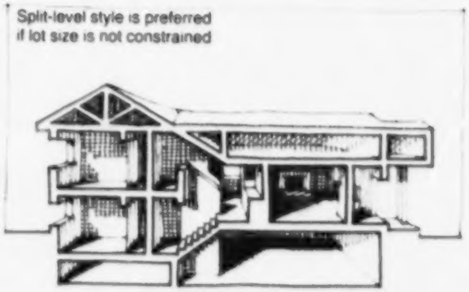
Facade Treatment. A plain facade has such a negative effect on Facade Buyers that they would not trade $1000 cost saving, unit area, or any other external design attribute for a plain facade.

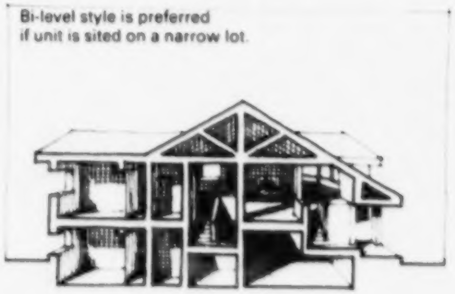
Window Location. A decorative facade is the only trade-off for side windows that would be considered by buyers in this group.

Unit Style. Facade Buyers are more variable in their preference for unit style than are Maximum Space or Style Buyers. If lot size were not a constraint, many Facade Buyers (39%) would prefer a split-level style. Given a 9.14 metre (30 foot) lot width, bi-level style is slightly preferred over split-level style. Two-storey and bungalow styles are not preferred on narrow lots.

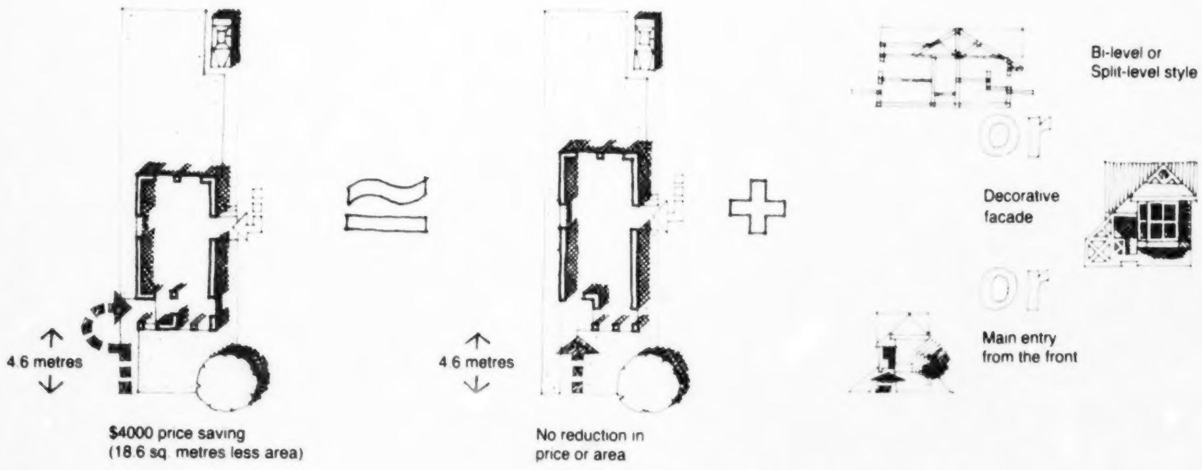

Decorative facade


Preferred Attributes
Side windows


Split-level style is preferred
if lot size is not constrained

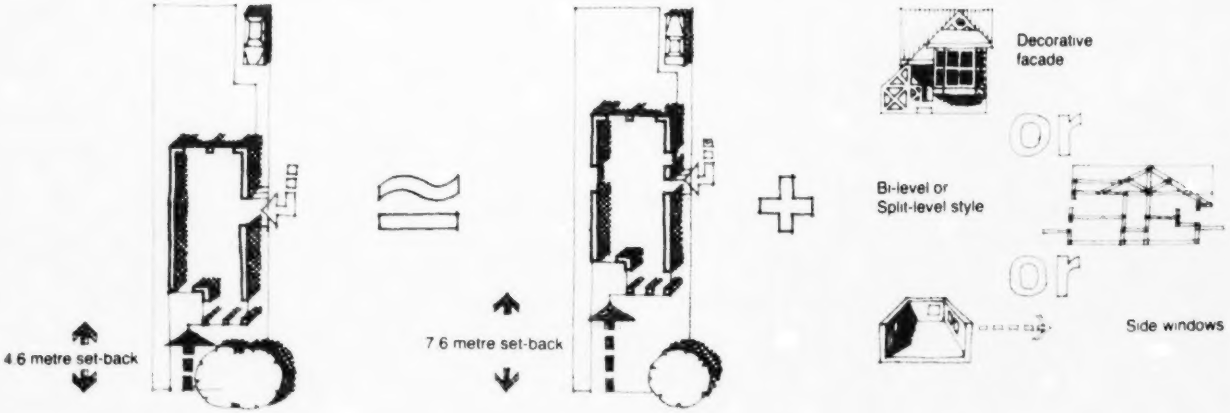

Bi-level style is preferred
if unit is sited on a narrow lot.

Examples of Design Trade-Offs


4 6 metres
$4000 price saving
(18 6 sq. metres less area)
4 6 metres
No reduction in
price or area
Bi-level or
Split-level style
or
Decorative
facade
or
Main entry
from the front

A dwelling with a price saving of $4000 is preferred.

Diminished preference for a unit with no price reduction can be compensated for by inclusion of any of the above features if they are not provided in the lower priced dwelling.


4 6 metre set-back
7 6 metre set-back
Decorative
facade
or
Bi-level or
Split-level style
or
Side windows

A small front set-back is preferred

Diminished preference for a unit with a larger front set-back can be compensated for by inclusion of any of the above features if they are not provided in the dwelling with the smaller set-back.

The only other external design attribute which has a more than slight effect on Facade Buyer preference is parking location. Rear lane access to backyard parking is most preferred; however, most buyers would accept front yard parking if this resulted in getting a split or bi-level unit with a decorative facade and windows on all four sides. Facade Buyers are essentially indifferent to variations in other external design attributes, as they are to trading off unit area for cost savings.

Facade Buyers
Preferences and Trade-Offs

Trade-Offs in Internal Design Attributes

Facade Buyer preferences are similar to those of other buyer groups in that the number of bedrooms, the presence of a half-bath on the main floor, and kitchen layout are significant factors. However, the relative importance of these internal design attributes, especially bedroom number, is generally less than with other buyer types. This allows more flexibility in trade-off options.

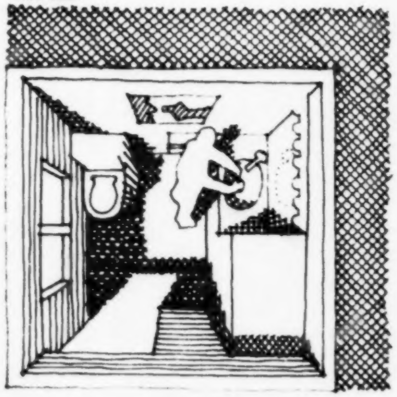
Kitchen Layout. A U-shaped kitchen layout is an important, if not the most important, unit attribute to Facade Buyers. L-shaped and "in-line" kitchen layouts are so strongly disliked that no other unit attribute could compensate for them. Buyers in this group value a U-shaped kitchen layout to the extent that a two bedroom unit or a unit with no half-bath would be accepted if it resulted in obtaining the preferred kitchen layout.

The size of the kitchen should be large enough to accommodate an eating area. Preference is for the main dining area to be integrated with the living room, although this is of limited significance. More important are kitchen cupboard doors with styled doors preferred over plain ones.

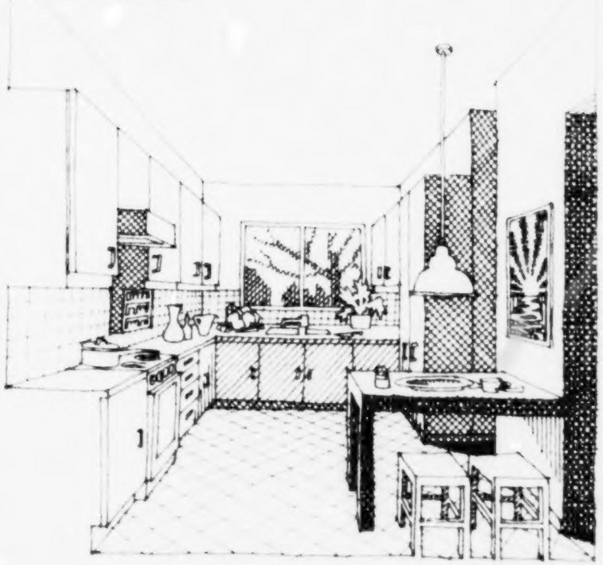
Half-Bath. Facade Buyers prefer a unit with one and a half baths, generally with the half-bath on a different level than the full bath.

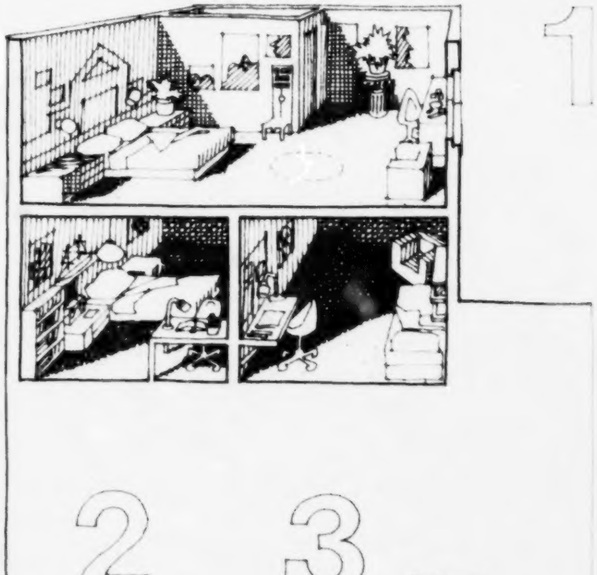
Number of Bedrooms. Most buyers of this group prefer a three bedroom unit, i.e., one with a large master bedroom and two smaller, secondary bedrooms. However, the preference for three bedrooms is not as strong as with other buyer groups. A two bedroom unit with a half-bath or a decorative facade, for example, would be preferred to a three bedroom unit without these.

Half-bath



U-shaped Kitchen
with eat-in area





Bedrooms

Facade Buyer preferences were also affected by variations in the following internal design attributes:

Stairway Location. Stairs located near an entry were preferred over a more central location.

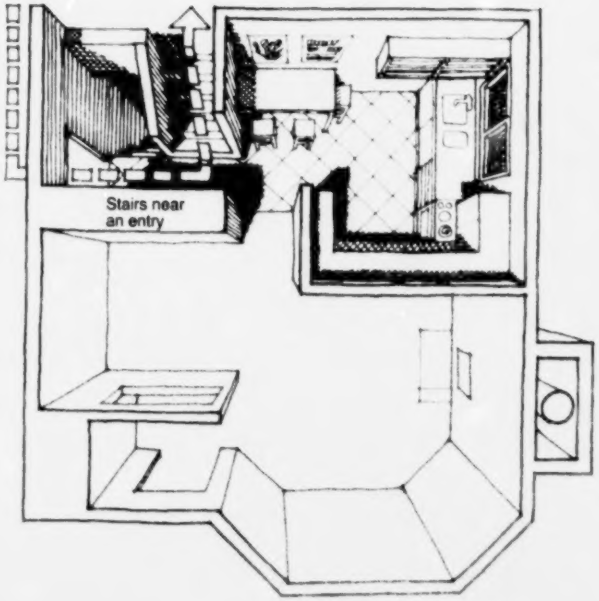
Second Entry Type. In contrast to other buyer groups, the second entry door type is relatively important to Facade Buyers. A hinged door is definitely preferred over a sliding patio door at the second entry.

On the whole, Facade Buyers are relatively indifferent to living room size and the presence of a main entry foyer, and have only a slight preference for a large living room and smaller dining area and no foyer.

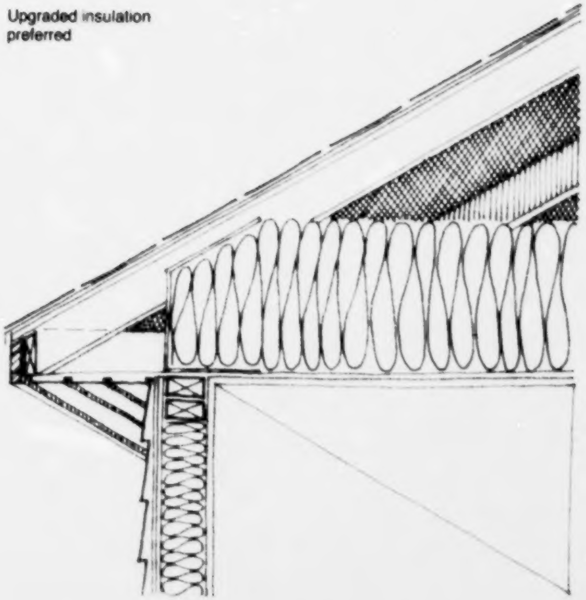
Trade-Offs in Construction-Related Attributes

Although aspects of construction quality are no less important to Facade Buyers than to other buyer groups, they have a less adverse reaction to leaving non-structural items for buyer completion.

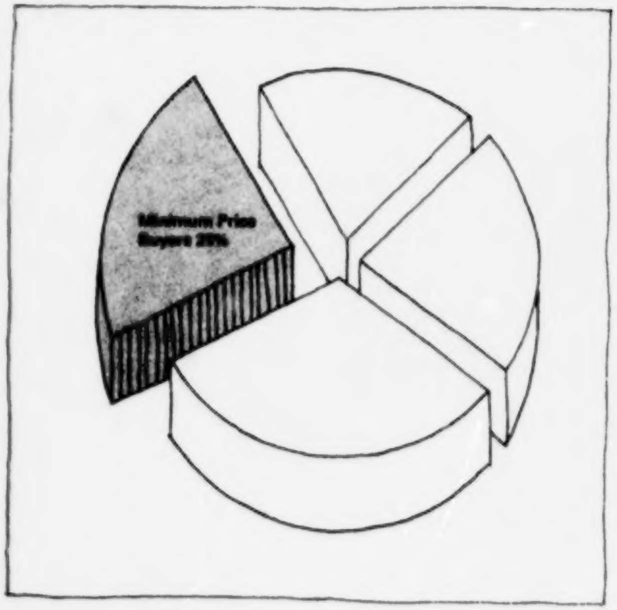
Upgraded insulation is the most important construction related trade-off for the Facade Buyer. Most Facade Buyers would probably be willing to trade buyer completion of one non-structural aspect for about **$1000** worth of extra insulation.



Upgraded insulation preferred



Minimum Price Buyers Preferences and Trade-Offs



Trade-Offs in External Design Attributes

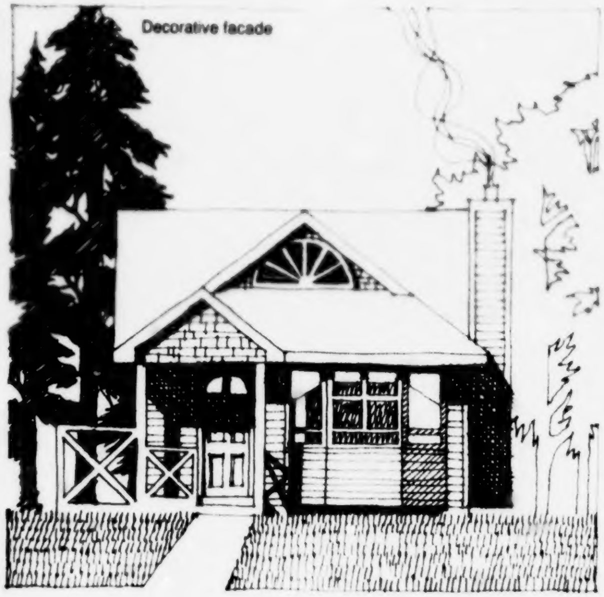
Minimum Price Buyers are primarily distinguished from other buyer groups by the high value placed on realizing cost savings in unit price through trade-offs in unit area. They are the only buyer group which will participate in such trade-offs without necessarily adversely affecting preferences. Reductions in unit area and associated cost savings increase Minimum Price Buyer's preference only to a degree that suggests buyers in this group value marginal changes in unit area at less than $215 per square metre.

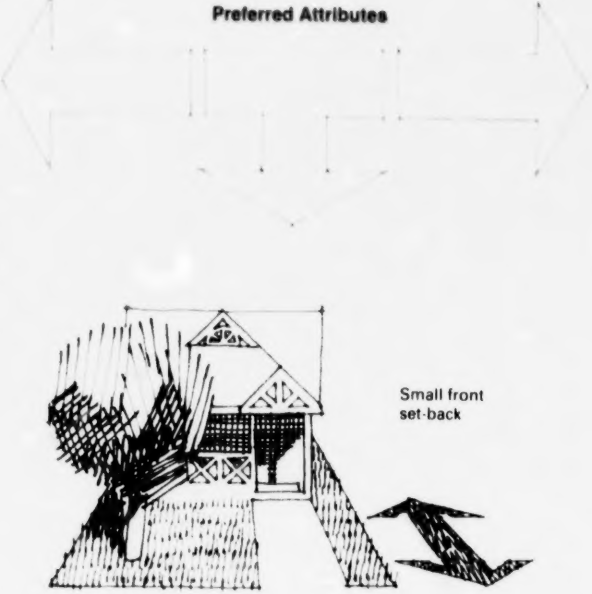
Although important, cost saving trade-offs in area are less significant to Minimum Price Buyers than the facade, style, and set-back of the unit.

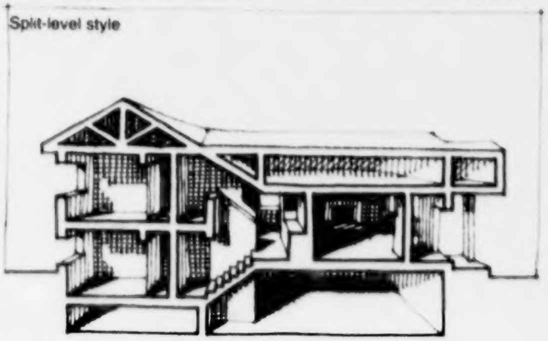
Facade Treatment. Minimum Price Buyers are similar to Facade Buyers in the high value placed on decorative facades. 9.29 square metres of unit area would be traded by a Minimum Price Buyer for a decorative facade, whereas a plain facade would not be acceptable to these buyers.

Unit Style. A split-level style is most preferred by Minimum Price Buyers. However, in contrast to other buyer groups, two-storey units are preferred to bi-level and bungalows on narrow lots. These buyers prefer a two-storey to a split-level unit if it means getting a small (4.6 metre) front setback, a smaller unit at a lower price, or windows on all sides of the unit.

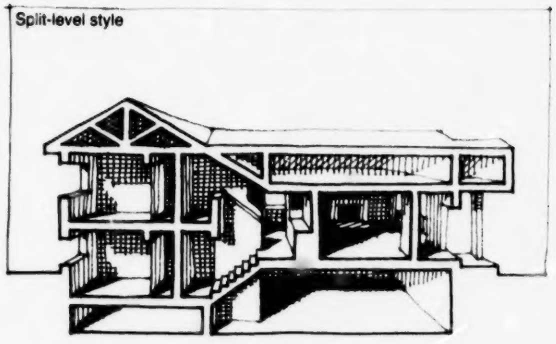
Front Yard Set-Back. A 4.6 metre front set-back is more important than cost savings. Savings would have to exceed $2000 in order for buyers of this group to accept a 7.6 metre set-back.



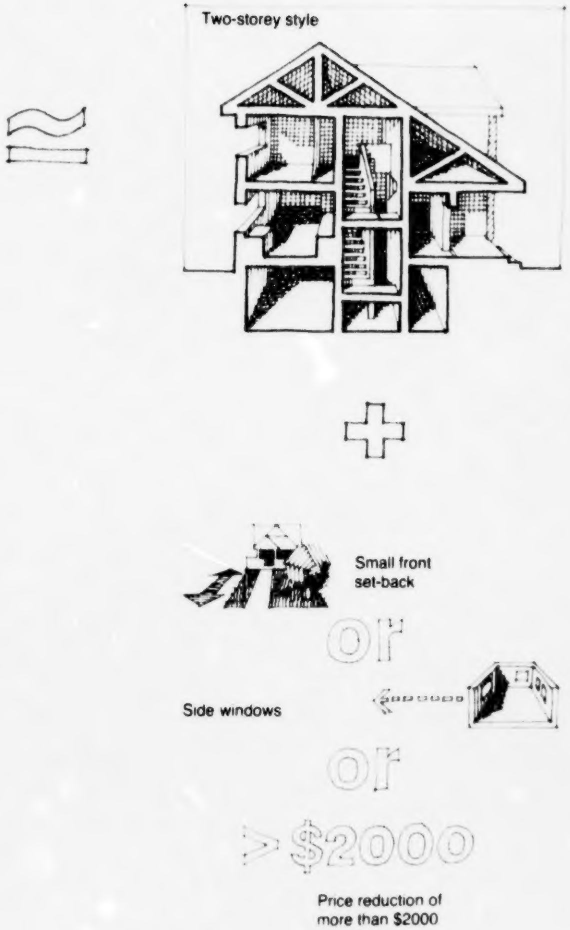




Example of Design Trade-Offs



A split-level style is preferred.



Diminished preference for a two-storey style dwelling can be compensated for by inclusion of any of the above features if they are not provided in the split-level dwelling.

Aside from window location, other external design attributes have a relatively minor effect on Minimum Price Buyer preferences.

Window Location. Minimum Price Buyers prefer to have windows on all sides of a unit, and are relatively indifferent to having a narrower unit if this trade-off is required to gain side windows.

Entry Locations. Front and back entry locations tend to be preferred by the Minimum Price Buyer group, although the second entry location is less significant and can be more or less dictated by unit style requirements.

Unit Shape. Minimum Space Buyers are relatively indifferent to unit shape, with a rectangular shape being slightly preferred to an L-shape.

Parking Location. Parking location was the least important external design attribute to Minimum Price Buyers, with street access to front yard parking being slightly preferred.

In designing single detached housing units most acceptable to Minimum Price Buyers, facade treatment, front yard set-back, window location, cost savings and the avoidance of bungalow styles must be kept in mind.

Minimum Price Buyers Preferences and Trade-Offs

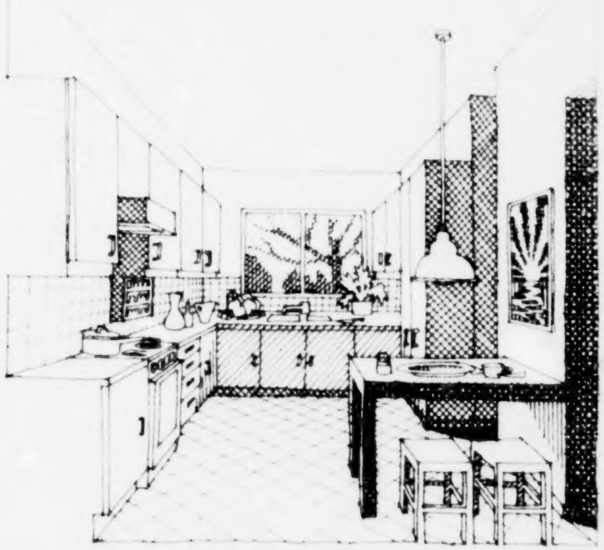
Trade-Offs in Internal Design Attributes

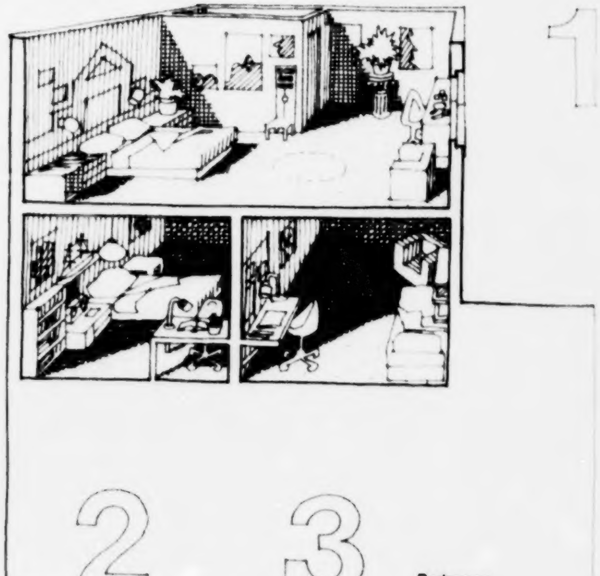
Minimum Price Buyers place a higher value on saving on the price of a new unit than on unit area. Room sizes are generally of less importance to this group than other internal attributes. Preferences of Minimum Price Buyers are mainly influenced by kitchen layout and design, number of bathrooms, and number of bedrooms.

Kitchen Layout. Consistent with preferences of most single detached buyers, a U-shaped kitchen is most preferred. An L-shaped counter layout is acceptable if it means getting one-and-one-half baths, but an "in-line" kitchen layout cannot be compensated for by any other internal design feature. A kitchen designed to include an eating area is also important to Minimum Price Buyers, and a choice of eating areas between the kitchen and a dining area integrated with the living area is the most preferable arrangement. Styled cupboard doors are much preferred over plain doors. Overall, kitchen design issues tend to be more important to these buyers than even the number of bedrooms.

Number of Bedrooms. Three bedroom units are most preferable to Minimum Price Buyers. However, a two bedroom unit is acceptable if it means getting a preferred kitchen counter layout, an eating area in the kitchen, styled cupboard doors, or one-and-one-half baths. The relatively lower preference shown for three bedrooms by Minimum Price Buyers should allow more flexibility in floor plans and layouts. Splitting bedrooms between levels would appear to be acceptable to most of these buyers.

U-shaped Kitchen
with eat-in area





Bedrooms

Other internal design attributes tend to have less of an effect on Minimum Price Buyer preferences.

Stairway Location. Stairs should be located near an entry.

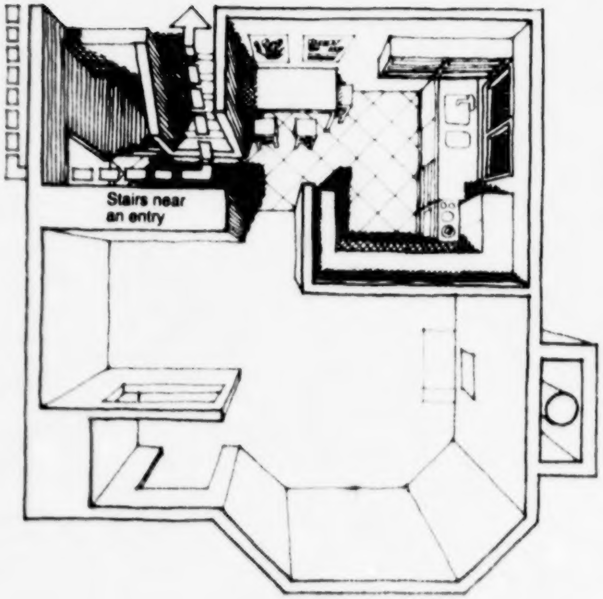
Living Room Size. A larger living room and smaller dining area is preferred by Minimum Price Buyers. Living room size however, is not so important that buyers in this group would eliminate the main entry hall or foyer in order to increase the living room size.

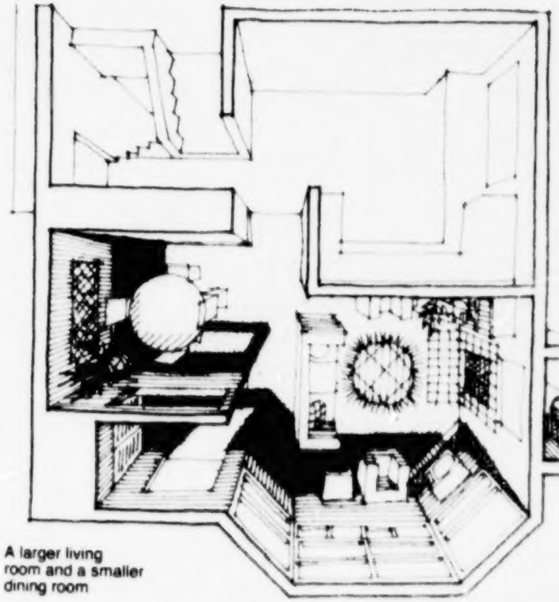
Second Entry Type. Minimum Price Buyers prefer hinged doors at the second entry over sliding patio doors.

Trade-Offs in Construction-Related Attributes

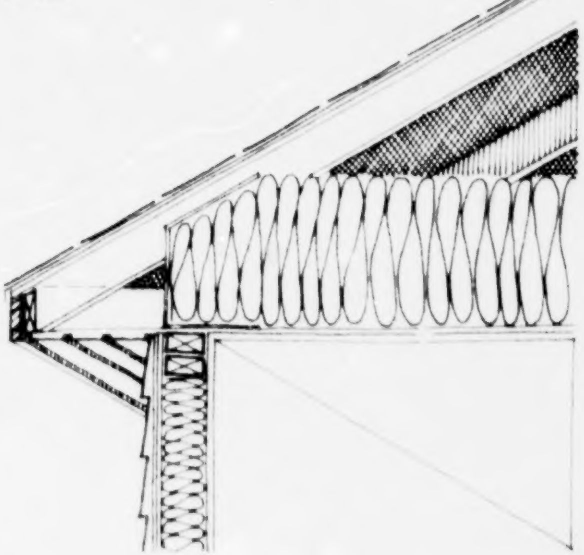
Minimum Price Buyers are somewhat different from other buyer types in their readiness to trade-off some degree of construction completion for cost savings. Buyer completion of flooring is not preferred by this group. Most would prefer to have a unit with the carpeting and linoleum installed. However, if it came to a choice between linoleum flooring throughout the unit and a $300 saving, or buyer completion of flooring and a $1300 saving, the larger cost saving would be preferred.

Upgraded insulation is also quite important to Minimum Price Buyers. Viable trade-offs for about $1000 worth of extra insulation include buyer completion of interior walls or flooring.




A larger living room and a smaller dining room

Upgraded insulation preferred



Cost Saving Trade-Offs

Opportunities for reducing unit costs without decreasing buyer preference or livability are relatively limited for moderately priced, single-detached units. Cost savings derived from changes in items of high perceived value, such as the facade treatment or the half-bath, result in major reductions in preference for the unit. A similar effect is also associated with a less than completedly finished unit.

The only trade-off acceptable to some buyers, in particular Facade and Price Buyers, is in unit area. Buyers in these groups will trade-off unit area for cost savings of about $215 per square metre. In the case of Minimum Price Buyers, reductions in area can be valued at even lower amounts. Given the importance construction quality has for single-detached buyers, preferences and livability would probably be increased if cost savings were used to upgrade insulation, floor and wall surfaces, and other visible construction-related items.

Maximum Space Buyers. Trade-offs which reduce direct construction costs without reducing the acceptability of the unit to the Maximum Space Buyer are relatively limited. Reductions in unit area generally cannot be used to reduce price. Some buyers may trade a reduction in area for a fancy facade with a net cost saving.

Style Buyers. No major cost savings involving unit attributes are possible for Style Buyers without adversely affecting the acceptability of the unit. Some minor savings could be realized in trading facade treatment for unit area.

Facade Buyers. Facade Buyers, as distinct from Space and Style Buyers, will entertain cost saving trade-offs. Major cost reductions can be achieved through reductions in unit area without adversely affecting buyer preference. In fact, preference is sometimes slightly enhanced by cost savings realized in this manner. Trade-offs in buyer completion, although not reducing net cost, can also be made with this buyer group in order to compensate for the increased cost of upgraded insulation.

Minimum Price Buyers. Minimum Price Buyers are the other group of single-detached buyers for whom cost saving trade-offs can be made without necessarily adversely affecting preferences. As with Facade Buyers, major price reductions can be achieved through reductions in unit area. Enough flexibility also exists with this group of buyers to allow improvements in other aspects of construction quality without increasing overall unit costs. Additional costs incurred through the upgrading of insulation and kitchen cupboards, for example, can be traded off for cost savings in buyer completion of such items as painting of interior walls or reductions in unit size.

Design Implications

Most discussions of single-detached unit buyers treat first time buyers as a distinct but undifferentiated market segment. This analysis and review, it is hoped, has brought out the fact that some important differences do exist among first time buyers, and that such differences must be recognized if buyer preferences are to be maximized.

Design decisions in a number of specific areas have a major effect in determining which of the four buyer segments will most prefer a specific single-detached unit, as well as the degree of that preference.

Unit Style. Given a narrow (9.14 metre/30 foot) lot, split-level or bi-level style is preferred over any others by buyers. A split-level has the most appeal to Maximum Space Buyers and Style Buyers, whereas a bi-level is most appealing to Facade Buyers. Market size is considerably limited with two-storey units, although Minimum Price Buyers will consider such a unit if preferred unit attributes are not available in other detached units available.

Facade treatment. All buyer types prefer a decorative facade to a plain facade even if this results in a smaller unit size. The only buyer type attracted to a plain facade is the Maximum Space Buyer and then only if unit size and siting preferences can be increased. Use of a plain facade would limit potential size to about 20% of first time buyers.

Unit Siting. Front yard set-back, separation spaces, and window locations are important to the preferences of all four buyer types. Maximum Space Buyers will accept a larger front yard set-back in trade for more unit area, a split-level style or a decorative facade. Style Buyers will accept a zero-lot-line unit and trade off side window locations for similar considerations. The net effect, though, of not having windows on all unit sides, or of not minimizing frontyard set-back, is to limit the preference for such units to less than half of first time buyers.

Unit Area. Major trade-offs in unit area for cost savings can be made with two buyer groups. Both Facade Buyers and Minimum Price Buyers will trade-off unit area for cost savings. Buyers seem to value reduced unit area at about $215 per square meter ($20 per square foot).

Degree of Completion. Most single-detached housing buyers prefer a totally completed unit and would not trade off buyer completion of non-structural items for cost savings. Additional costs associated with improvement of construction quality and workmanship, which are of major importance to the purchase decision, will have to be offset through savings in other design aspects.

Decisions with respect to these design attributes will largely determine which buyer types are most attracted to a particular single-detached unit. Presumably, such decisions will also affect potential market size and the saleability of particular units.

In addition to these unit attributes previously discussed, a number of other attributes, although not as important in determining which buyer group would be most attracted, are significant influences on buyer preference. A half-bath, a U-shaped kitchen, and three bedrooms have high perceived values for buyers of all four groups. Departures from these attributes invariably decrease buyer preference, and these departures are difficult to compensate with trade-offs. This strongly suggests that they must be included in the design of a single family unit in order to maximize potential market size.

Total unit price and unit area also are of major importance in the marketing of new single-detached units. The implicit assumption made throughout the discussion of single-detached units was that unit prices for first time buyers averaged around $75,000 to $80,000 with a unit size of about 102 square metres (1100 square feet). Analysis of buyer preference in terms of unit area and maximum affordable price for their next home, however, suggests that both these parameters cover a much broader range. Most recent purchasers tend to have their sights set on larger, more expensive homes for their second purchase. The fact that the four buyer types occur in roughly the same proportion in all price and size ranges. This suggests that designing units for different buyer types is not dependent on price or total unit size. Therefore, design decisions which seek to improve livability or reduce costs in moderately priced single-detached units should be based more on the preferences of specific buyer groups than on price or unit area considerations.

Design of single-detached units to incorporate preferred unit attributes may be impeded by two types of constraints: increases in construction cost and regulatory constraints. Under the discussion of buyer preferences and trade-offs, unit attributes which would increase costs were generally associated with others which would offset these increases. For example, a decorative facade and deviations from a rectangular shape were associated with reductions in unit area. Using this approach, construction cost increases associated with preferred unit attributes should only be marginal. Cost increases which do occur are primarily associated with a net increase in preference for the unit. Such cost increases would therefore be compensated for by reductions in area.

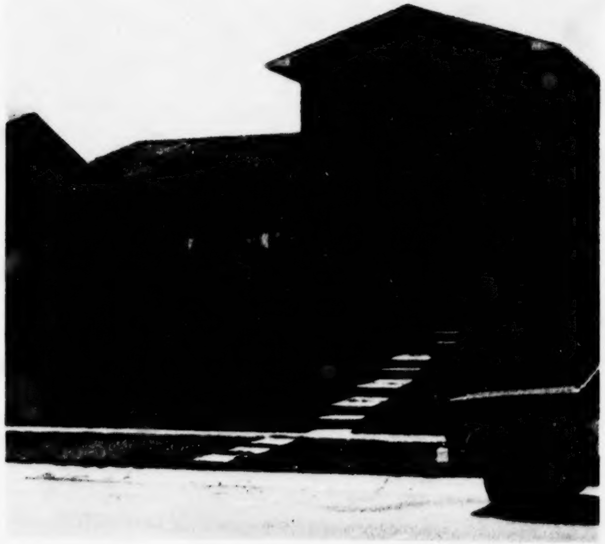
In only one area did preferred buyer attributes conflict with regulatory requirements. Most buyer types prefer a wider unit. However, to situate a wider unit on a narrow lot requires zero-lot-line siting with the attendant restrictions on side window locations. The absence of windows on all unit sides tends to have a fairly substantial negative effect on buyer preference. It is unlikely that such regulatory requirements can be changed. The best compromise solution is to have two side yards and preferred window locations. The preferability of this alternative more than offsets the less preferred narrow unit.

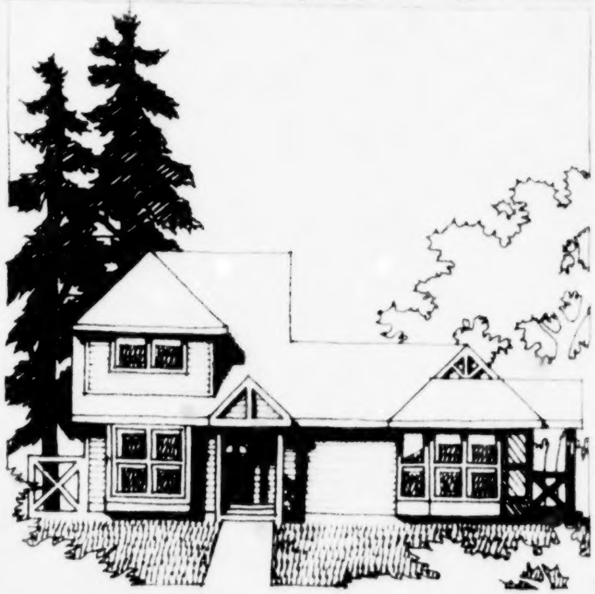
Single-detached unit buyers tend to place a high value on decorative facades. While there are no regulatory constraints which put a direct limitation on facade treatment, lending regulations for units financed by Alberta Home Mortgage are such that certain facade elements are considered "frills" and are restricted in number.

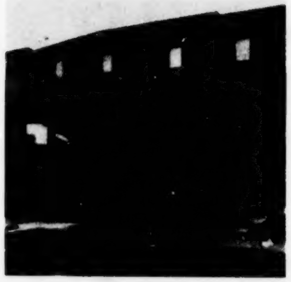
Land use by-laws place restrictions on the use of front yard parking. However, since only Maximum Space Buyers show a marginal preference for this type of parking, this restriction cannot be considered as seriously affecting buyer preferences.

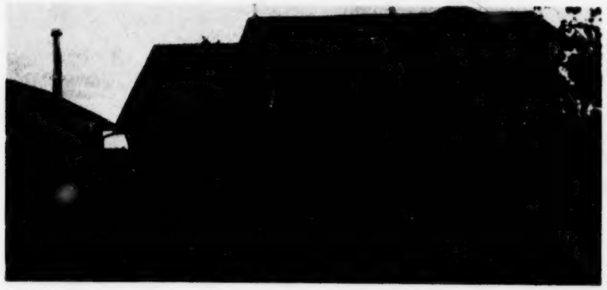
Semi-Detached Units

Semi-Detached Units









33 Buyer Types
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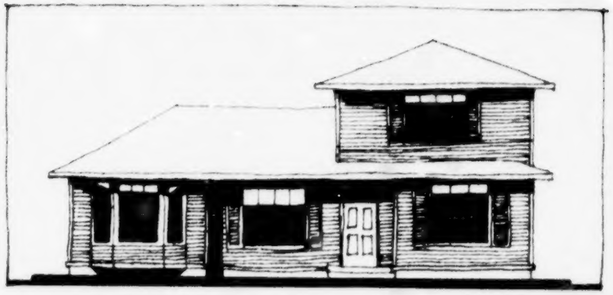
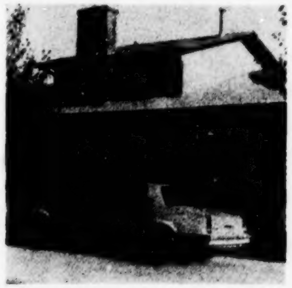
35 Design Implications





Buyer Types

The evaluation for semi-detached units was carried out on a much more limited scale than for single-detached units. Overall sample size in both Calgary and Edmonton was limited to 50 households who had purchased moderately priced units within the last year. Prospective buyers of semi-detached units were not included since no showhomes were specifically selling this type of unit at the time of the study.

Although the intention of the survey was to obtain responses from only recent buyers of semi-detached units, a number of responses were from households renting their unit (29%). It was decided to retain renters in the sample given the small sample size and the relevance of their experiences living in new semi-detached units.

Because of the small sample size semi-detached buyers were considered as a group and not classified into buyer types as with single-detached housing.

Preferences and Trade-Offs

Since semi-detached buyers were considered as a group and not classified into buyer types, preferences and trade-offs only apply to the group as a whole. Unit attributes examined in terms of buyer preferences in semi-detached units was very much the same as for single-detached units. The main differences occurred in the siting of the unit, facade treatment and location of windows.

Distinguishing preferences and trade-offs of semi-detached buyers derived from the lack of physical separation between units and the visual impact created by connected units.

Trade-Offs in External Design Attributes

Most important to semi-detached buyer preferences in terms of external design attributes are those attributes related to external appearance.

Facade Treatment. A decorative or fancy facade has a major effect on increasing buyer preferences even if additional costs are off-set by reducing the unit area by 9.29 square metres. Few, if any, semi-detached buyers would trade off cost savings or other unit attributes for a plain facade.

Preference is generally increased if styles are mixed. Mixed styles which were specifically analyzed were the bungalow and two-storey styles. Given these choices, buyer preference was greatest with a bungalow attached to a two-storey as opposed to two attached bungalows or two attached two-storey units.

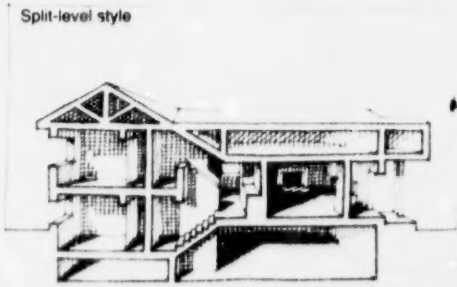
Preference was also increased by the appearance of only one, versus two entries, on the front facade. Overall, the preference for one entry appearing on the dual facade is more important than mixing styles between two adjoining units.

Unit Style. A split-level is most preferred However, individual unit style does not have major impact on buyer preference. The decrease in preference resulting from a bi-level style is very slight and most buyers would accept two-storey and bungalow styles in order to have mixed styles in attached units.

The evaluation of buyer preferences in externa design attributes of semi-detached units als included the following attributes:

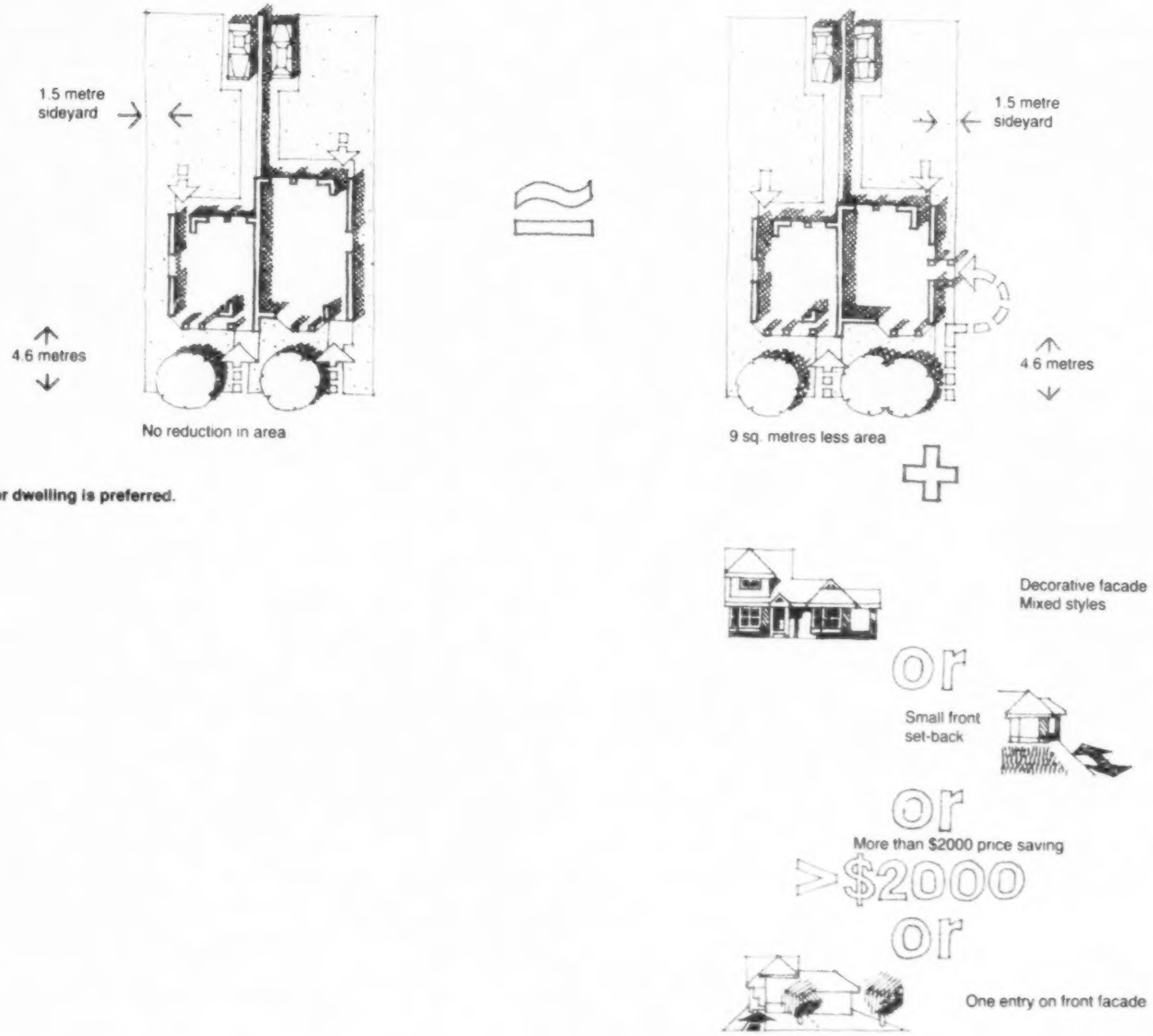
Unit Width. The width of the unit affects parking location. Preference is increased with a wider (7.6 metre) unit width and rear lane access to backyard parking instead of a narrower unit which allows side drive parking. Unit width and parking location are less important to preferences than attributes associated with facade appearance.

Front Yard Set-Back. A 4.6 metre set-back is generally preferred over a 7.6 metre set-back if the latter decreases backyard space. A large front yard would be preferred if it resulted in desired facade features or increased unit width.



Split-level style

Example of Design Trade-Offs


1.5 metre sideyard
4.6 metres
No reduction in area
≅
1.5 metre sideyard
4.6 metres
9 sq. metres less area
Decorative facade Mixed styles
or
Small front set-back
or
More than $2000 price saving
>$2000
or
One entry on front facade

A larger dwelling is preferred.

Diminished preference for a unit with 9 sq. metres less area can be compensated for by inclusion of any of the above features if they are not provided in the larger dwelling.

Entry Locations. Despite the importance the number of entries has on preference the location of the main entry for a particular unit has no effect on buyer preference. Location of the second entry is much more important and preference is increased by a back entry instead of a side entry.

Unit Shape and Area. Preferences among variations in unit shape are relatively minor although a rectangular shape is somewhat preferred to a smaller L-shaped unit. Likewise, trade-offs in unit area for cost savings also have a relatively minor effect on preferences. As a group semi-detached buyers are indifferent to the cost savings resulting from a 9.29 square metre reduction in unit area. A 18.58 square metre reduction tends to decrease preferences slightly.

Facade and appearance related attributes are the most important in terms of buyer preferences and variations in other external design attributes would be acceptable trade-offs to maximize these two attributes.

Trade-Offs in Internal Design Attributes

As was the case with most single-detached buyer types, the number of bedrooms and bathrooms, and kitchen layout and design have the greatest impact on preferences.

Number of Bedrooms. A large master bedroom and two smaller secondary bedrooms are most preferred. Bedroom number was the most important attribute included in the analysis.

Half-Bath. A half-bath on the main floor also has a major impact on buyer preference and would be traded off only if this meant a three bedroom instead of a two bedroom unit.

Kitchen Layout. The decline in preference with an L-shaped over a U-shaped kitchen is not very great and trade-offs involving variations in living and dining area size can compensate for this decline. Buyers are essentially indifferent to whether cupboard doors are plain or styled.

Generally, semi-detached buyers prefer a larger dining area integrated with the kitchen. Living room size can be traded off for increased dining area and the kitchen area should be large enough for an eating area or breakfast nook. In comparison to the attributes just discussed, other attributes have a relatively minor effect on buyer preferences. As a group, semi-detached buyers prefer a main entrance foyer, stairs located near the entry and a sliding patio door as a second entry. Trade-offs in these attributes can easily be made to allow variations that would increase buyer preferences.

Trade-Offs in Construction-Related Attributes

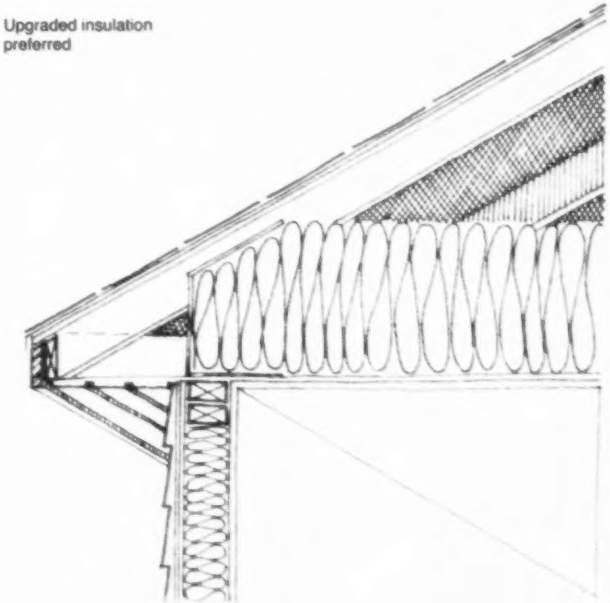
Quality of soundproofing between units and quality of thermal insulation are very important to semi-detached buyers. Buyers would, for the most part, prefer to make the trade-offs to upgrade both insulation and soundproofing. Upgrading insulation tends to be the most important of the construction-related trade-offs examined. Buyers will trade completion of painting, flooring or even kitchen storage space if the associated costs are applied to upgraded insulation. Painting of interior walls and floor finishing can also be traded for upgraded soundproofing. These trade-offs do not imply that preferences will not decrease if items are left for buyer completion. Preference will decrease, but upgraded insulation and soundproofing can compensate for these declines in preferences.

Cost Saving Trade-Offs

For semi-detached buyers as a group, relatively few opportunities exist to reduce total unit costs without adversely affecting buyer preferences for a unit. Increased costs for facade treatment and upgrading construction quality can be offset by unit area reductions and buyer completion of certain non-structural items. Cost savings that go beyond these aspects could result in some decline in preference for the unit.

One possible source for additional savings is in further reduction of unit area. Such a reduction has only a relatively minor effect in preference decline for semi-detached buyers as a group. Undoubtedly, some semi-detached buyers would prefer the cost savings attributable to area reduction.

Upgraded insulation preferred



Design Implications

Given the degree to which buyer preferences are affected by variations in some unit attributes, it seems reasonable to conclude that special consideration should be directed to these attributes.

External Appearance. Facade appearance and mix of unit styles are very important to buyer preferences for a semi-detached unit. Preferences are greater for attached units of dissimilar unit style that give the impression of one large unit with continuity of design, facade treatment and a single visible entry, as opposed to two smaller attached units, each with its own front door. Considerable flexibility is possible in the mix of styles without adversely affecting buyer preferences.

Internal Attributes. A semi-detached unit should have at least three bedrooms, one-and-one-half baths and a U-shaped kitchen layout in order to maximize buyer preferences. Cost savings through eliminating such attributes would not be prudent due to a resulting severe decrease in buyer preference for the unit.

Construction Quality. Workmanship and construction quality, especially in soundproofing and insulation, are extremely important to the purchase decision. Although improvements in these areas are not a matter of just additional costs, most buyers appear to be willing to make compromises in order to trade off extra costs associated with upgrading of construction quality.

Conflicts between regulatory constraints and buyer preferences are not a problem. If reductions in unit area are sufficient to compensate for increased costs of facade treatments, construction cost constraints should be relatively minimal in designing semi-detached units which meet buyer preferences.

Townhouse Units

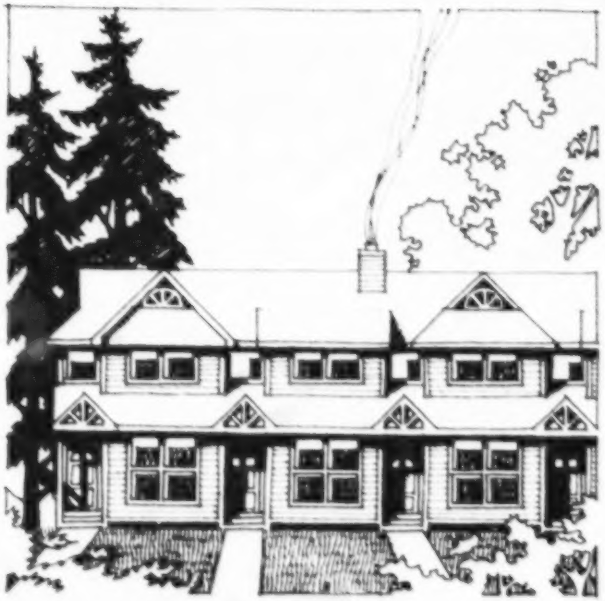
37 Buyer Types

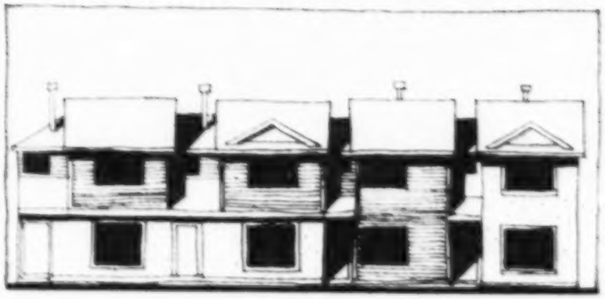
38 Common Preferences

40 Preferences and Trade-Offs by Buyer Types

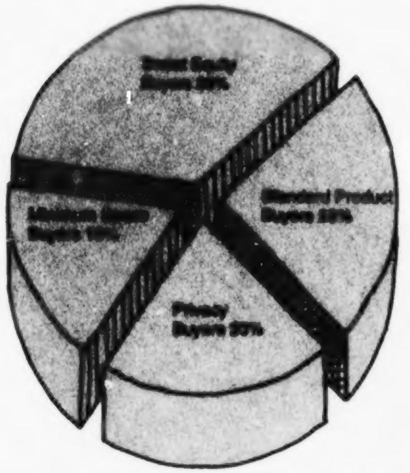
48 Cost-Saving Trade-Offs

48 Design Implications





Buyer Types



In a manner similar to the analysis of single-detached unit buyers, recent townhouse buyers were also grouped into four homogeneous buyer types on the basis of their preferences for selected unit attributes.

Sweat Equity Buyers

A major distinguishing characteristic of the 36% of recent townhouse buyers in this group is their preference for realizing cost savings in the unit price resulting from buyer completion of non-structural aspects in the interior of the unit. Sweat Equity Buyers were somewhat more prominent in the Calgary market.

Most households in this buyer group were young married couples with slightly more than half of the households having children. One in ten households was headed by a single parent. The average household income was $31,000 and the average age of the respondents was 27.

Standard Product Buyers

Twenty-six percent of recent townhouse buyers were Standard Product Buyers. Preferences of these buyers are generally decreased by alternatives deviating from product which has typically been built for the Calgary and Edmonton markets.

Households in the second buyer group are quite similar to Sweat Equity Buyers. Household size is slightly larger given that there are more two children households in this group. About half of the households (51%) have two incomes, somewhat fewer than the 59% of Sweat Equity Buyers that have two incomes.

The average household income was $30,000 and the average age of the respondents was 26.

Privacy Buyers

The 20% of respondents classified as Privacy Buyers are primarily distinguished from other buyer types by their preference for trade-offs which result in more privacy both inside and outside the unit. These buyers were more likely to be recent Edmonton townhouse buyers.

Privacy Buyers had the highest average income of any townhouse group and 69% of the households had two incomes. The average age was also slightly older than in other groups but household composition remained quite similar. The average household income was $32,000 and the average age of the respondents was 29.

Minimum Space Buyers

The smallest group of townhouse buyers are characterized by their preference for realizing cost savings in unit price through the reduction of the unit area. Only 18% of townhouse households were Minimum Space Buyers.

Of the townhouse renters that were included in the total survey (5% overall) — over half of these fell into this group. This may partially account for the slightly lower household incomes and smaller average household size in this group. The average household income was $24,000 and the average age of the respondents was 28.

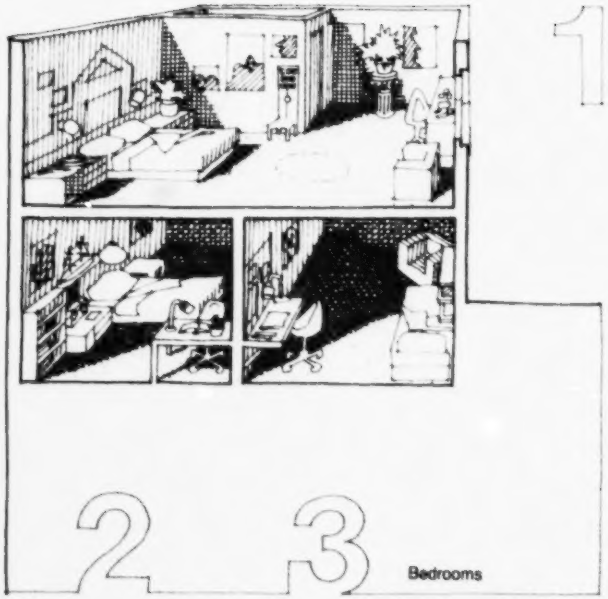
Common Preferences

Unit features associated with external design attributes were formulated differently for townhouse units than for other unit types. Variances in facade and style were not evaluated, given that most moderately and low priced townhouse projects in Calgary and Edmonton are typically two-storey units with uniform facade treatments. However, special attention was paid to variances in unit and project attributes which could result in cost savings since price advantage is one of the major benefits sought by townhouse buyers.

External Design Requirements

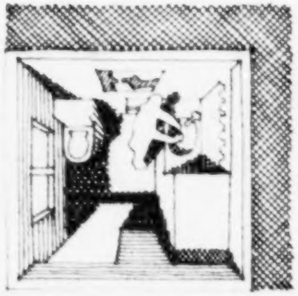
Unmet design requirements external to the unit itself were mainly related to aspects of privacy, yard sizes, parking location and circulation. Preferences of buyer types vary somewhat for unit attributes associated with these requirements.

- Side-by-side attachment is preferred by all buyer types except for Privacy Buyers who prefer a back-to-back attachment of four units;
- All buyer types except for Privacy Buyers prefer parking close to the unit over potential cost savings of grouping parking further from the unit.
- Reductions in unit size are not preferred except for Minimum Space Buyers who would prefer reduced area along with associated cost savings.
- Block length tends to affect exterior accessibility to backyards. Preferences are generally for shorter blocks of four units. The decrease in preference from attaching side-by-side units in longer blocks is relatively minor if cost savings can be realized.



Bedrooms

Half-bath



Internal Design Requirements

Preferences for internal unit attributes are fairly consistent across buyer types. Preferences are generally increased for most buyers if a unit has the following attributes:

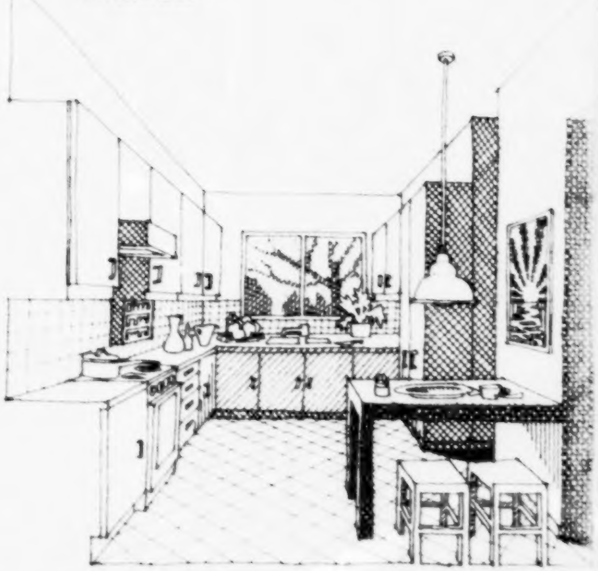
- three bedrooms, one-and-one-half baths;
- U-shaped kitchen counter layout;
- main entry foyer with stairs next to the entry; and
- an eating area in the kitchen with an optional small dining area integrated with the living room.

Construction-Related Requirements

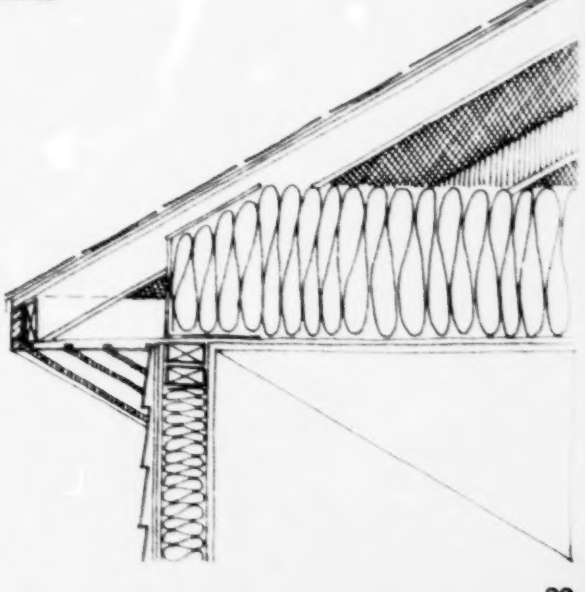
Perhaps somewhat surprising, over 50% of townhouse buyers surveyed preferred cost savings attained through buyer completion of non-structural items. Both Sweat Equity and Privacy Buyers prefer the cost savings realized by completing painting and flooring to having a completed unit. All buyer types would pay more for upgraded insulation and would seek trade-offs to upgrade soundproofing.

Perhaps a note of caution should be registered concerning the stated willingness of the townhouse buyer to defer completion and assume responsibility for finishing their unit. Some buyers may not be fully aware of all the implications of buyer completion, including practical difficulties and possible higher prices to the owner than those offered by the builder.

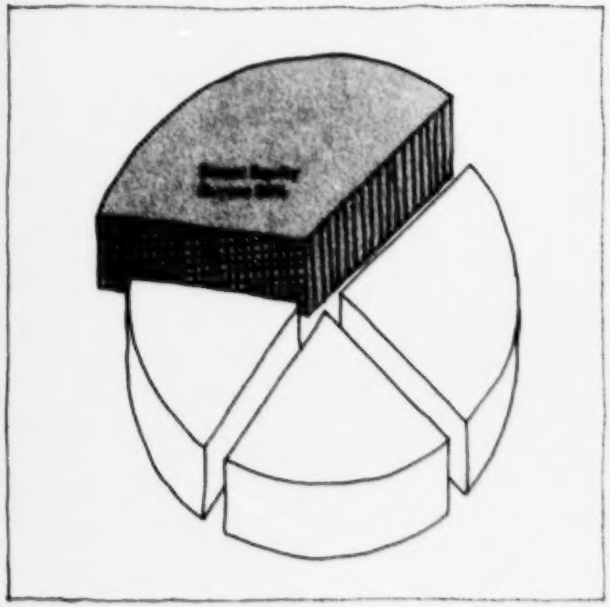
U-shaped Kitchen with eat-in area



Upgraded insulation preferred



Sweat Equity Buyers
Preferences and Trade-Offs



Trade-Offs in External Design Attributes

Preferences of Sweat Equity Buyers are most affected by the following unit and project attributes.

Type of Attachment. A side-by-side attachment which results in double aspect units is much preferred over back-to-back attachment. Buyers in this group would be unwilling to trade off a side-by-side attachment for any of the other external design attributes.

Unit Area. Unit area or size has an important effect on buyer preferences. Sweat Equity Buyers would not be willing to trade off 18.58 square metres for a $4,000 cost saving unless there was no other way to obtain a double aspect unit. Nor would they be willing to accept an L-shaped unit which increases backyard privacy but results in a reduction of 9.29 square metres of unit area.

Other trade-offs which are not as significant in terms of increasing buyer preference include:

Parking. Preferences tended to decline with grouped parking away from the unit, suggesting buyers would rather forego the $500 cost saving and have vehicles parked directly outside the unit.

Outdoor Living Area. Buyers were presented with two options; a 37 square metre (398 square feet) backyard and a common tot-lot or 55 square metres (592 square feet) of backyard with no tot-lot. Preferences increase with a smaller backyard in exchange for more common area but most buyers would trade off the increased common area for preferred parking arrangements or increased unit size.

Number of Attached Units. Four units in a block are preferred to ten units in a block and the associated $2500 cost saving. Block size has only a minor effect on buyer preferences and the decline in preferences resulting from larger blocks of attached units can be compensated for by trade-offs in other attributes. The actual width of individual attached units has very little effect and buyers are indifferent to unit width.

Trade-Offs in Internal Design Attributes

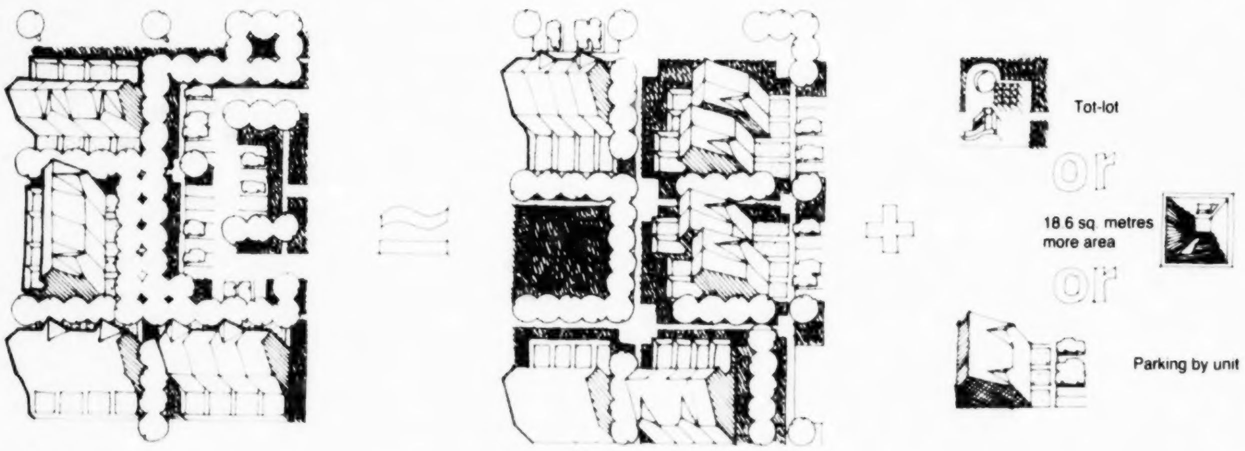
Two unit attributes included in the set of internal design attributes have a major impact on the preferences of Sweat Equity Buyers.

Number of Bedrooms. Almost all buyers in this group would trade a unit with two large bedrooms for one with a large master bedroom and two, smaller, secondary bedrooms. A two bedroom unit results in a major decline in buyer preferences no matter what the trade-offs involved.

Half-Bath. The vast majority of buyers in this group would not trade off a half-bath for a $1500 cost saving. There is a strong preference for a half-bath in a two-storey townhouse.

Overall, Sweat Equity Buyers were not greatly affected by variations in other internal design attributes, although kitchen and living room size tended to have more of an impact on preferences than the remaining attributes.

Examples of Design Trade-Offs

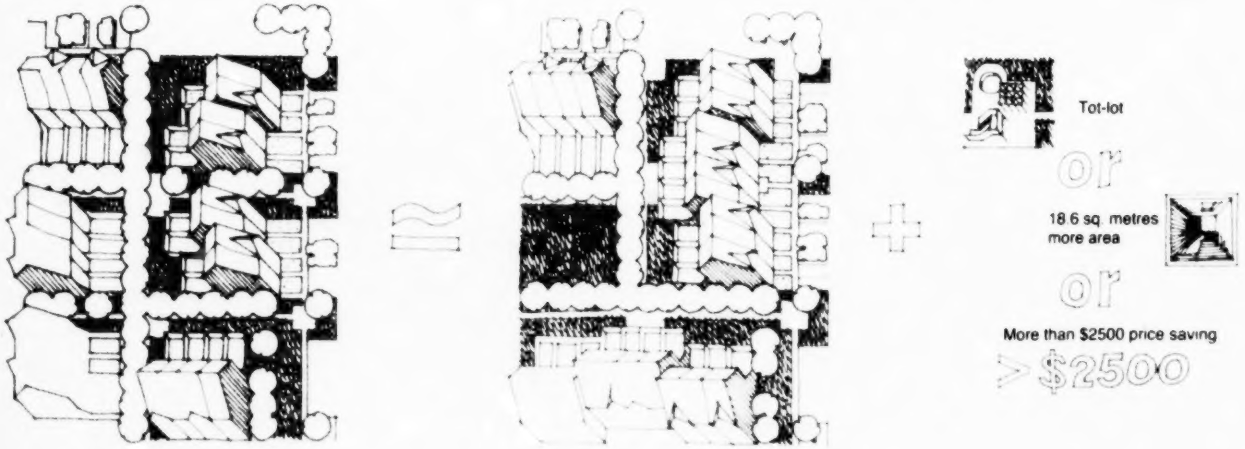


6 metre wide unit

4.5 metre wide unit

A 6 metre wide unit is preferred.

Diminished preference for the narrower unit can be compensated for by inclusion of any of the above features if they are not provided in the project with wider dwellings.



4 unit block

10 unit block

Four units in a block are preferred.

Diminished preference for a project containing ten-unit blocks can be compensated for by inclusion of any of the above features if they are not provided within the project containing four-unit blocks.

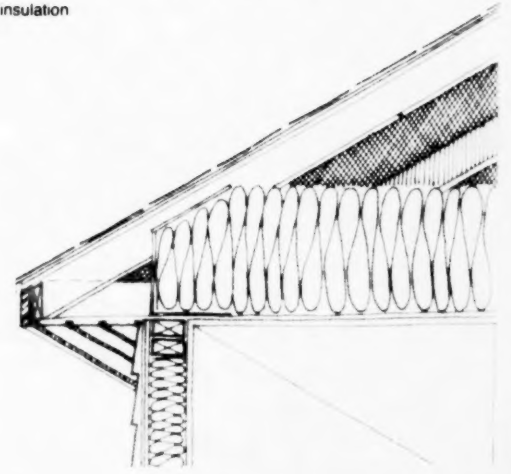
Trade-Offs in Construction-Related Attributes

As a group, Sweat Equity Buyers do not prefer to make cost saving trade-offs in external, project-related or unit size attributes. Preferences are increased by cost saving trade-offs involving buyer completion of non-structural internal aspects of the unit.

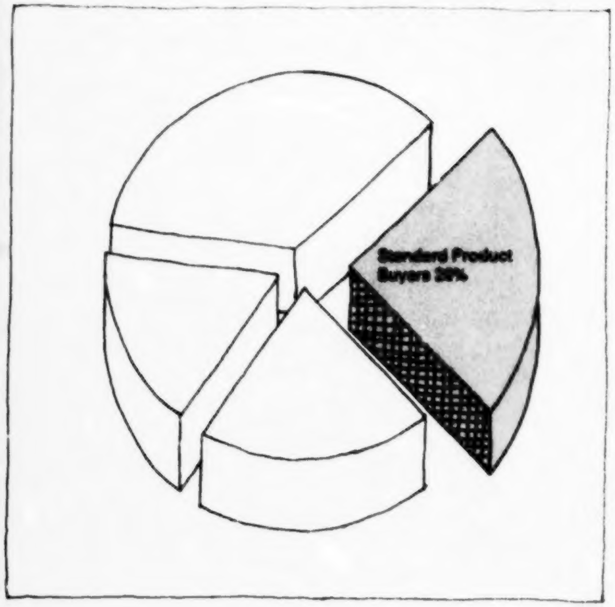
Upgraded soundproofing has a major effect on increasing buyer preferences even if this means considering other cost saving trade-offs. Upgraded insulation has a similar effect on preferences. Increased costs of insulation can be traded off against buyer completion of painting.

Buyers in this group also claim to prefer cost savings from completing the flooring in their units. Preferences are greater for a $1300 cost saving from leaving floors at the subfloor stage than for carpeting of the quality typically used in moderately priced townhouses. There is buyer indifference to trade-offs involving a $1000 savings by leaving walls unpainted.

Upgraded insulation preferred



Standard Product Buyers Preferences and Trade-Offs



Trade-Offs in External Design Attributes

The most important buyer preferences in terms of external unit and project attributes are those associated with type of attachment and unit area.

Type of Attachment. Side-by-side attachment is much preferred over back-to-back attachment. Preference is even greater if block size is limited to four units, although the number of units per block has only a relatively minor effect on buyer preferences.

Unit Area and Shape. Trade-offs which result in a smaller unit size will decrease buyer preference. This group would not be willing to trade off an 18.58 square metre reduction in unit size for a $4000 cost saving nor would it consider trading off 9.29 square metres for an L-shaped unit. Only if preferred attachment type is available in no other way will a smaller unit size be acceptable.

Other unit attributes that affect buyer preferences are:

Outdoor Living Area. Backyard size cannot be increased at the expense of common open area or by the elimination of a tot-lot without decreasing buyer preferences.

Parking. Parking near the unit is preferred over grouped parking further away with its associated cost savings. The decline in preference as a result of grouped parking is relatively minor and can be offset by increased unit area.

Unit Width. Buyers are relatively indifferent to unit width and increasing unit width by 1.5 metres (4 feet) has only a marginal effect on buyer preferences.

Trade-Offs in Internal Design Attributes

These attributes tend to be much more important to the Standard Product Buyers than external unit or project-related attributes. Of particular importance are the number of bedrooms, bathrooms and kitchen layout and design.

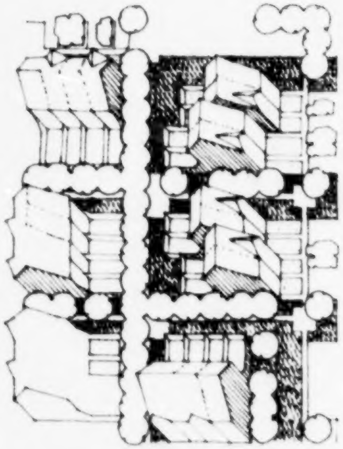
Number of Bedrooms. A three bedroom townhouse unit consisting of a large master bedroom and two secondary, smaller, bedrooms is much preferred over two larger bedrooms. A two bedroom unit results in a major decline in preferences among these buyers.

Half-Bath. Buyers in this group would not trade-off a half-bath for $1500 in cost savings or any other unit attributes.

Kitchen Layout. The U-shaped kitchen layout is preferred over the L-shaped layout but the L-shaped layout is acceptable in return for inclusion of an eating area. Preference is for an eating area in the kitchen and a main dining area integrated with the living room. Styled cupboard doors are preferred over plain doors.

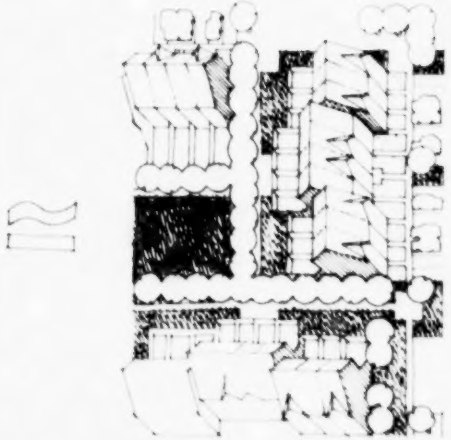
A larger living room is preferred at the expense of space that could be allocated to the dining area. A foyer separating the main entry from the living room has a major effect on increasing preferences. Of less importance are stairway location and secondary entry type. A central location is preferred for stairs and a sliding patio door is preferred for the secondary entrance.

Examples of Design Trade-Offs

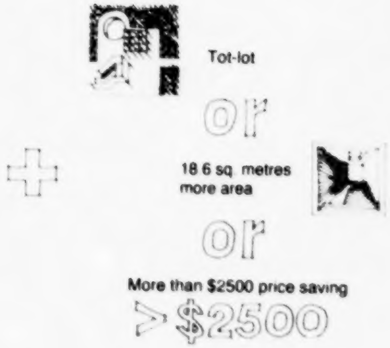


4 unit block

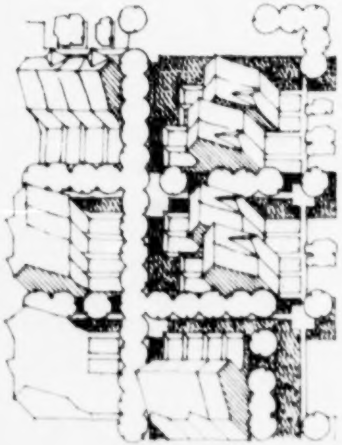
A four-unit block is preferred.



10 unit block

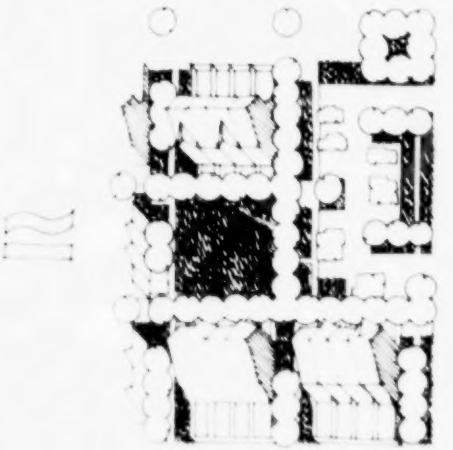

Tot-lot
or
18 6 sq. metres
more area
or
More than $2500 price saving
>$2500

Diminished preference for a project containing ten-unit blocks can be compensated for by inclusion of any of the above features if they are not provided within the project containing four-unit blocks.

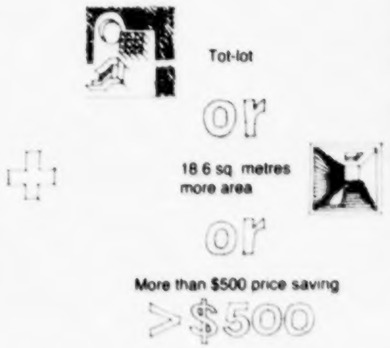


Parking by unit

Parking by the unit is preferred.



Grouped parking

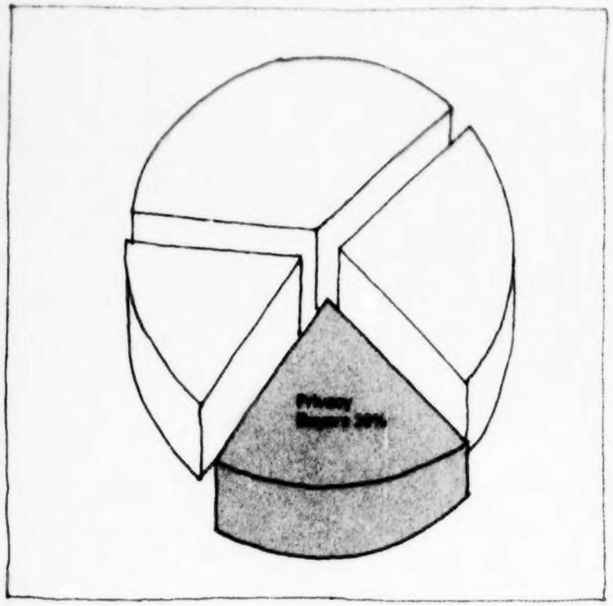

Tot-lot
or
18 6 sq. metres
more area
or
More than $500 price saving
>$500

Diminished preference for a project with grouped parking can be compensated for by inclusion of any of the above features if they are not provided in the project with parking by the unit.

Trade-Offs in Construction-Related Attributes

For the Standard Product Buyer trade-offs in buyer completion of non-structural aspects for cost savings cannot be made without major declines in buyer preferences. It would appear that marginal increases in unit price for quality improvements are more preferred by this group than trade-offs which maintain unit price and result in less than complete townhouse unit.

Privacy Buyers
Preferences and Trade-Offs



Trade-Offs in External Design Attributes

This was the only group of townhouse buyers, who as a group, preferred a back-to-back attachment to a side-by-side attachment. This implies limiting units per block to four if preferences are to be maximized. Privacy Buyers are also different from other townhouse buyer groups in their preferences for unit attributes associated with outdoor privacy and parking arrangements.

Unit Shape. Strongest preference is for L-shaped units grouped back-to-back in clusters of four. An acceptable trade-off is a 9.29 square metre reduction in unit area to compensate for increased construction costs of an L-shaped unit. Additional trade-offs in unit area for cost savings will, however, decrease preferences of these buyers.

Unit Width. A back-to-back attachment results in a wider unit and preferences decline with any reduction below a 7.6 metre width.

Open Living Area. Preferences are for more area in the backyard at the expense of the common open area or a project tot-lot. Variances in open living area have a minor effect on preferences and the decline in preferences due to a decline in this area can be compensated for by most other preferred external design attributes.

Parking. The cost savings through grouped parking away from the unit versus parking adjacent to the unit increases preferences, although only to a minor extent. This is the only buyer group that showed a preference for the cost savings associated with grouped parking.

Trade-Offs in Internal Design Attributes

Attributes related to kitchen layout and design and number of bedrooms and bathrooms are most important for this group.

Kitchen Layout. A U-shaped kitchen layout is preferred over other alternatives to the extent that no trade-offs are possible in terms of other unit attributes. The kitchen area should also be designed with an eating area. The preference for styled cupboard doors over plain doors is important.

Number of Bedrooms. A three bedroom unit is much preferred over a two bedroom unit, however, the third bedroom would be traded off by most buyers in this group for preferred kitchen layout and design attributes.

Half-Bath. The number of baths has approximately the same importance to buyer preference as the number of bedrooms. The presence of a half-bath has a major effect on buyer preference. Only kitchen layout is relatively more important.

The following unit attributes are also relatively important to Privacy Buyers:

Entry Treatment. Preferences are increased by the use of a hinged door as a second entry versus a sliding patio door. A foyer should separate the main entry from the living room.

Stairway Location. Stairs should be located near the entry to increase preference.

Living Room Size. Most buyers prefer a slightly larger dining area at the expense of the living room size. This trade-off is only of minor importance to preferences.

Trade-Offs in Construction-Related Attributes

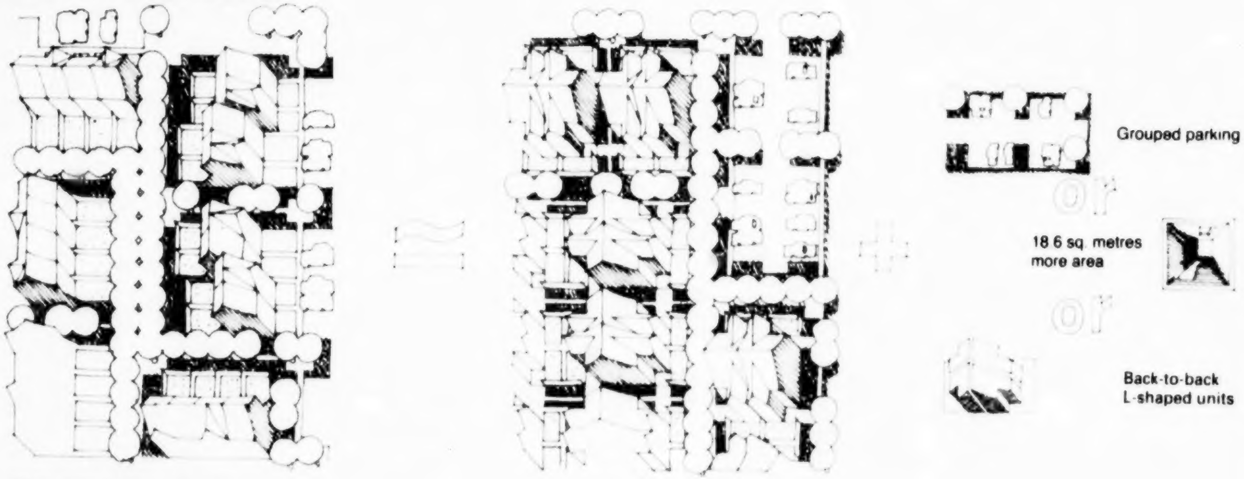
This buyer group is quite similar to Sweat Equity Buyers in their preference for trade-offs of buyer completion of non-structural construction-related aspects for cost savings or quality improvements in other areas. Preferences are greatest with the following trade-offs:

Flooring. Buyer completion of flooring and the associated cost savings are preferred to either linoleum flooring only or typical carpeting.

Wall Surfaces. Buyer completion of painting and associated cost savings are preferred to having walls already painted.

Insulation. Upgraded insulation at extra cost is also preferred to standard insulation.

Example of Design Trade-Offs



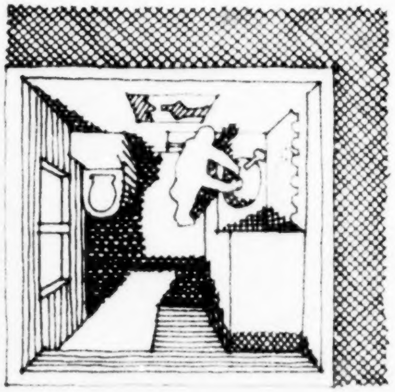
55 sq. metre private open space

A large private open space is preferred.

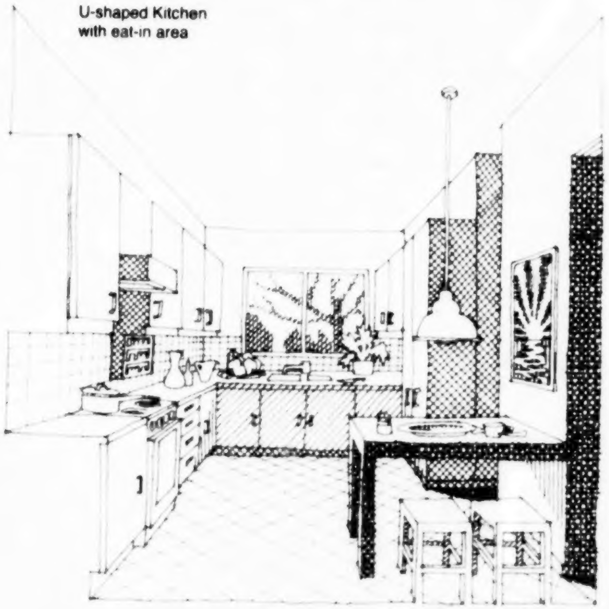
37 sq. metre private open space

Diminished preference for a project with smaller areas of private open space can be compensated for by inclusion of any of the above features if they are not provided in the project with larger areas of private open space.

Half bath

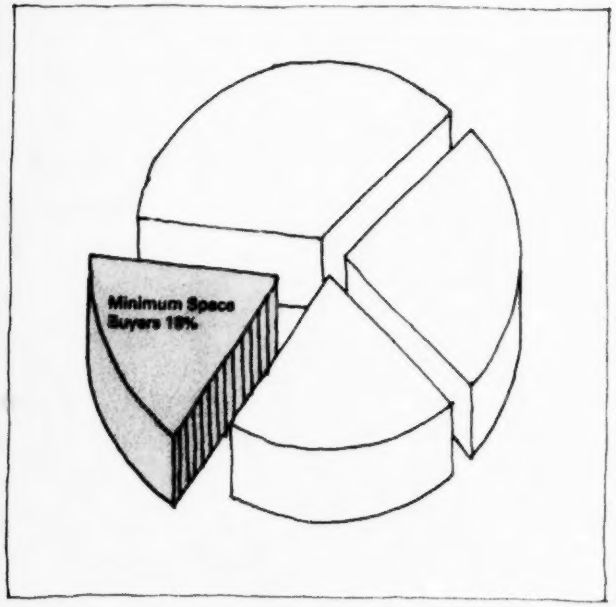


U-shaped Kitchen
with eat-in area



Upgraded insulation
preferred

Minimum Space Buyers Preferences and Trade-Offs



Trade-Offs in External Design Attributes

The following unit attributes included in the set of external design attributes had the greatest effect on Minimum Space Buyer preferences:

Type of Attachment. A side-by-side attachment is much preferred over back-to-back by Minimum Space Buyers. No other external attribute would compensate for the decline in preference resulting from back-to-back attachment. The number of units per block or unit width is of relatively minor importance. A ten unit block versus a four unit block results in a savings of $2500 with only a small decline in preference. Reducing unit width from 6 to 4.5 metres has a smaller negative effect on preferences.

Outdoor Living Area. Trade-offs in common area or a project tot-lot are generally preferred if this results in more backyard space for individual units. An L-shaped unit is preferred to a rectangular shape, even at the expense of 9.29 square metres of unit area.

Parking. Parking adjoining the unit is preferred to cost savings attainable by group parking removed from the unit. Preferred parking would be traded for more backyard space if no other alternative were available.

Unit Area. The preference for trade-offs in unit size or area for cost savings is what most distinguishes Minimum Space Buyers from other townhouse buyer types. The only external unit attributes more important to preferences than such cost savings are type of attachment and backyard size.

Most external design attributes have a fairly substantial effect on buyer preferences. This tends to restrict design alternatives which do not unduly decrease preferences to variation in block size and unit width.

Trade-Offs in Internal Design Attributes

Internal design attributes tend to be of relatively less importance to buyer preferences than other design attributes. The most important attributes were still number of bedrooms and baths, and kitchen layout.

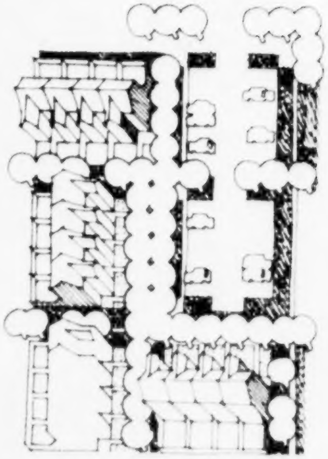
Number of Bedrooms. A three bedroom unit is much preferred over a two bedroom unit.

Half-Bath. A half-bath should be located on the main floor if the full bath is upstairs. A half-bath is valued more than a $1500 cost saving.

Kitchen Layout. A U-shaped counter is much preferred over alternative layouts. Plain cupboard doors are preferred over styled cupboard doors. Preferences for an eating area location are inconclusive.

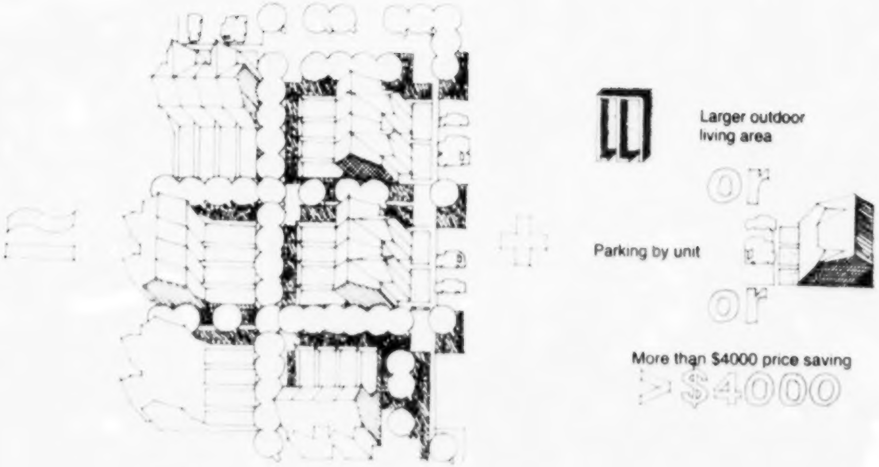
Generally, preferences are to have no eating area in the kitchen and more living room area to more dining room area. There is a slight decline in preferences resulting from integrating the dining and living room areas. The best compromise may be a small dining area relatively separate from both kitchen and living room.

Examples of Design Trade-Offs



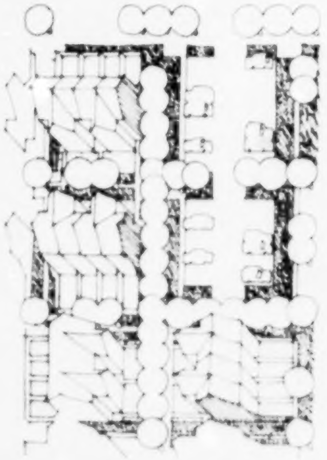
6 metre wide unit

A 6 metre wide unit is preferred.


≈
+
Larger outdoor living area
or
Parking by unit
or
More than $4000 price saving
>$4000

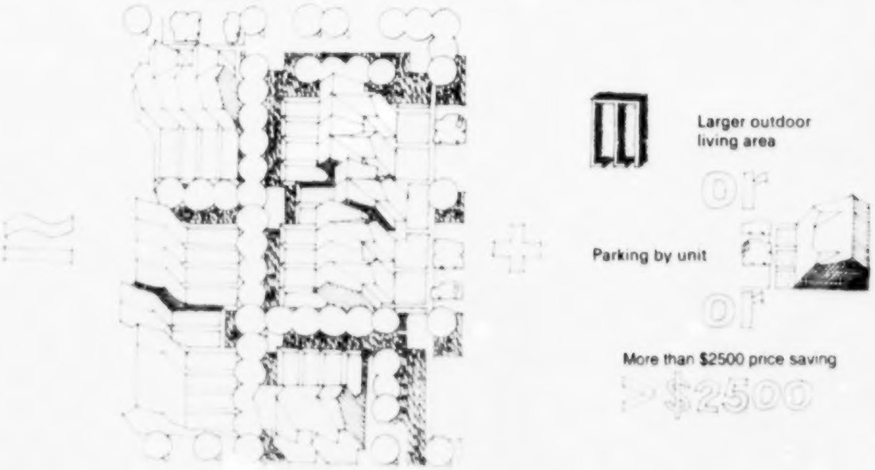
4.5 metre wide unit

Diminished preference for a project containing narrower units can be compensated for by inclusion of any of the above features if they are not provided in the project with wider dwellings.



4 unit block

Four units in a block are preferred.


≈
+
Larger outdoor living area
or
Parking by unit
or
More than $2500 price saving
>$2500

10 unit block

Diminished preference for a project containing ten-unit blocks can be compensated for by inclusion of any of the above features if they are not provided in the project containing four-unit blocks.

Trade-Offs in Construction-Related Attributes

Minimum Space Buyers tend not to prefer cost saving trade-offs which involve buyer completion of non-structural construction-related items. Painting or floor finishing by the buyer has a major negative effect on preferences. Upgraded insulation is worth an additional $1000 but upgraded soundproofing is not a strong enough preference to consider other trade-offs.

The only construction-related item buyers would trade off is buyer completion of overhead kitchen cupboards for a $500 cost saving. This trade-off has limited appeal and minor effect on preferences.

Cost Saving Trade-Offs

Considerable cost savings appear to be possible in project layout and buyer completion of townhouse units without reducing preferences or livability for three of the townhouse buyer types:

- An estimated $2500 per unit cost saving is possible by attaching units in longer rows. Preferences are only slightly reduced, except for Privacy Buyers, with this trade-off.
- Privacy Buyers prefer back-to-back attachments and grouped parking. Together these two trade-offs are estimated to save $1000 per unit.
- Minimum Space Buyers will trade off 18.58 square metres (200 square feet) unit area for $4000 in cost savings.
- Sweat Equity and Privacy Buyers prefer cost saving trade-offs in buyer completion. These are estimated to result in a potential $2300 saving.

Sweat Equity Buyers. Areas in which cost savings can be attained without reducing buyer preferences are primarily restricted to aspects of buyer completion. Eliminating the half-bath or reducing the unit area cannot be considered as trade-off items. Additional savings could perhaps be realized by attaching more units in a block.

Based on estimates obtained from builders, savings in direct construction costs in completing to the subfloor stage only average $1800 and leaving walls unpainted saves about $900. Additional costs incurred in upgrading insulation and soundproofing should be less than this amount.

There may be some question as to whether Sweat Equity Buyers would act on their stated preferences about buyer completion when faced with a finished unit and a cheaper unfinished unit. This is an area of the study that should be approached with caution since some evidence shows that few buyers choose to finish their unit themselves in return for cost savings. Buyer completion simply defers expenditures and prices to the owner at the time of completion may be higher than prices offered by the builder at the time of purchase.

Standard Product Buyers. None of the cost saving trade-offs can be applied without decreasing buyer preference, especially trade-offs involving buyer completion or reductions in unit area. Some savings can perhaps be realized by attaching more units in a block or by grouped parking.

Privacy Buyers. Preferences for grouped parking and back-to-back attachment can reduce unit price by an estimated $1000. Additional savings in buyer completion could be as much as $2800. Some of these savings should be used to upgrade soundproofing and insulation. Net reductions in unit price after these quality improvements are estimated in the order of $2000 per unit.

Minimum Space Buyers. Trade-offs in unit area for cost savings on total unit prices are much more acceptable to these buyers than other cost saving trade-offs. Additional savings may be realized in using larger unit blocks which has a marginal effect on preferences. Together, trade-offs in these two aspects are estimated to result in up to $6500 in direct construction cost savings which can be used to upgrade construction quality in other areas or to reduce total unit price.

Design Implications

When planning townhouse units a number of design attributes should be included to increase livability, irrespective of buyer type, and other attributes should be included to maximize preferences of specific buyer types.

The least variation amongst the four townhouse buyer types tends to be in preferences for internal design attributes. Kitchen layout, and the number of bedrooms and bathrooms, are of major importance to the preferences of all four buyer types and therefore trade-offs utilizing these features are restricted. Preferences are maximized with:

- U-Shaped kitchen with a window in the kitchen work area and an eating area in the kitchen;
- a large master bedroom and two smaller, secondary bedrooms; and
- a half-bath near the second entry, if the main bath is on another level.

Preferences for other internal attributes are also fairly consistent across the four buyer types. Deviations from the following attributes tend to have a relatively minor effect on preferences:

- a main entry hall or foyer;
- stairs located next to an entry instead of centrally located in the unit;
- main dining area integrated with the living area; and
- a larger living room at the expense of the dining area.

The major differences amongst the four townhouse buyer types are in their preferences for external unit and project attributes and aspects of buyer completion. For the most part, these differences can be seen as differences in preferences for cost saving trade-offs.

Type of Attachment — a side-by-side attachment is preferred with the exception of Privacy Buyers who prefer back-to-back attachment and then only if double aspect units are used and the attached grouping is limited to four units. Other buyer types also prefer this four unit grouping but for the remaining group larger unit groupings do not affect preferences to the same degree as with Privacy Buyers.

Parking — Privacy Buyers again distinguish themselves in their preference for cost savings attained by grouped parking away from the unit. Preferences for parking next to the unit is not strong for other buyers and cost saving trade-offs are possible.

Unit Area — only Minimum Space Buyers will trade off unit area for cost savings. This group of buyers was the smallest of the four and also had the lowest average household income.

In terms of external unit or project attributes, townhouse buyers can be considered as either preferring the standard type of product built for Edmonton and Calgary markets or preferring variation which results in more privacy for the individual unit. Buyers with strong preferences are primarily classified into Privacy Buyers and Minimum Space Buyers, together representing about 40% of total townhouse buyers. These buyers tend to prefer L-shaped units and larger backyards and increased backyard area is a viable trade-off for less common area or elimination of a project tot-lot. Present regulatory requirements for townhouse projects may restrict such trade-offs for a family-oriented project. However, other trade-offs in grouped parking or unit width may still allow some increase in backyard size.

The other major area of differentiation amongst townhouse buyers is in cost saving trade-offs for buyer completion of non-structural aspects of unit construction. Both Sweat Equity Buyers and Privacy Buyers claimed to prefer to complete the painting of interior walls and finishing floors for either reductions in unit price or improvements in soundproofing, insulation or other aspects of construction quality. Such trade-offs, although they are used in single-detached units, have not been extensively tried in townhousing. Constraints on such trade-offs in townhousing appear to be more of an administrative than regulatory nature.

As a general rule of thumb, moderately priced townhousing should be about $10,000 less than comparably sized, single-detached housing to be attractive to prospective purchasers in the Calgary and Edmonton markets. During the past few years this price difference has been difficult to achieve while still maintaining a satisfactory profit margin. Implementing some of the cost saving trade-offs discussed for townhousing may ameliorate this situation. Trade-offs which can reduce per unit costs are possible for about 75% of townhouse buyers and can range from $2500 per unit by attaching more units in a block to $4000 by trade-offs in buyer completion or reduction of the unit area.

Regulatory constraints could prevent the implementation of preferred unit attributes in two areas. Preferences for trade-offs of common area for increased private open area are to some extent constrained by minimum common area requirements stipulated in local by-laws. Eliminating common area or a tot-lot in a family-oriented development is likely to meet stiff resistance from both regulatory agencies and buyer types who prefer these attributes.

Constraints on buyer completion appear to be more a matter of procedures and establishing responsibility for completion than regulatory constraints. Buyer completion is now being used in single-detached units. Applying it to townhousing requires some demonstration of market demand and increased flexibility on the part of mortgage lenders.

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